Lethal Surveillance: Drones and the Geo-History of Modern War

A Dissertation
SUBMITTED TO THE FACULTY OF THE
UNIVERSITY OF MINNESOTA
BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Dr. Eric S. Sheppard

May 2015

Acknowledgements

I first would like to thank my advisor, Eric Sheppard. Through long discussions, patient readings, and encouraging feedback, Eric has not only supported this project in its many twists and turns, but has also served as a mentor in the truest sense. I have learned a lot about how I now want to shape and foster my interactions with future students and advisees, using him as a model. I would also like to thank my dissertation committee as a whole, which includes Eric, Vinay Gidwani, Bruce Braun, Cesare Casarino, and JB Shank. Over the many years of graduate school, my conversations with each of you have formed the basis of the arguments in the thesis. I only manage to scratch the surface here, but it sets the groundwork for what I hope are life-long investigations into questions of modern science, violence, and state power. More importantly, as I reflect on why I have assembled such a formidable committee, I am reminded that you all have taught me how to read. My own encounter with philosophy and theory has been the greatest and most unexpected gift of my decision to start graduate school and has changed the direction of my life in many ways. I treasure that and my time spent with each of you.

I would also like to thank the close friends I have made in Minneapolis. Tom Cannavino, Ricardo Rebolledo, Aly Pennucci, Ben Stork, Lydia Lunning, Nathan Clough, and Ahna Brutlag – you have all nourished my mind, my soul, and my belly. I am so grateful for your friendships. I am also grateful for the support of my family

through this long process. I am lucky to have a family that also enjoys learning and has always enthusiastically supported whatever endeavor I have undertaken.

Finally, I am forever thankful to Garnet. You remind me that the reason for all of this is joy and love. With you I live an extraordinary life.

Abstract

Interdisciplinary both in scope and method, my dissertation, *Lethal Surveillance: Drones and the Geo-History of Modern War*, examines the history of drone technology from the start of the 20th century to the present in order to understand the significance of the increasing centrality of drones to current American military engagements and security practices more generally. Much of the scholarship on drones and many other contemporary military technologies tends to view the technology as radically new, missing both the historical development of these objects as well as the perspectives and rationalities that are embedded in their use. For this research, I focused on three main periods of drone research and development: the early years of World War I and II in the UK, the Cold War, and the 1990s. In studying this history of the drone, I found that two key trends emerge as significant: the increasing importance of information to warfare under the rubric of intelligence, reconnaissance and surveillance; and a shift toward more dynamic, speedier, and individualized targeting practices. I argue that the widespread use of drones today thus represents the culmination of attempts in war to effectively link these two trends, creating a practice I call lethal surveillance – with the armed Predator effectively closing the loop between identifying and killing targets. The concept of lethal surveillance, which in my dissertation I place squarely within the histories of modern scientific thinking and Western liberal governance, allows us to see how techniques of Western state power and knowledge production are merging with practices of killing and control in new ways, causing significant changes to both the operations of the state and to practices of war. Framing the drone through the lens of lethal surveillance, therefore, allows us to see the longer histories the drone is embedded in as well as other security practices it is connected to.

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Chapter 1

Introduction

In December 2009, President Barack Obama accepted the Nobel Peace Prize and his speech centered on the themes of violence and war. Toward the end of a section justifying the United States' global use of force after September 11, Obama turned to the methods of war:

> Even as we make difficult decisions about going to war, we must also think clearly about how we fight it. The Nobel Committee recognized this truth in awarding its first prize for peace to Henry Dunant – the founder of the Red Cross, and a driving force behind the Geneva Conventions. Where force is necessary, we have a moral and strategic interest in binding ourselves to certain rules of conduct. And even as we confront a vicious adversary that abides by no rules, I believe the United States of America must remain a standard bearer in the conduct of war. That is what makes us different from those whom we fight. That is a source of our strength. That is why I prohibited torture. That is why I ordered the prison at Guantanamo Bay closed. And that is why I have reaffirmed America's commitment to abide by the Geneva Conventions. We lose ourselves when we compromise the very ideals that we fight to defend. (Applause). (Office of the Press Secretary 2009)

In the year following Obama's speech, the CIA conducted 128 drone strikes in Pakistan, more than double of total strikes conducted by the Bush administration globally and by all agencies (Bureau of Investigative Journalism 2011).[1] The emergence of a global

[1] Data from Bureau of Investigative Journalism. Available online: http://www.thebureauinvestigates.com/2011/08/10/obama-2010-strikes/. For a powerful visualization of drones strikes over time in Pakistan see the interactive dataset "Out of Sight, Out of Mind" at http://drones.pitchinteractive.com (accessed April 14, 2015). For graphs providing comparisons between the Bush and Obama administrations, including where strikes have occurred and what the intended targets were, see New America Foundation (n.d).

drone war beyond the battlefields of Afghanistan and Iraq has happened quickly and controversially – raising anew many of the questions of laws, rights, and values that Obama sought in his speech to dispel.

This research itself began with the question of the methods of warfare. In trying to make sense of the emergence of contemporary drone wars and the centrality of drones to warmaking and security practices today I asked: does the drone, and in particular its unmanned and targeting-at-a-distance capabilities, signal a significant change in Western warfare and, if so, in what ways? As I explored this question, with the use of drones – by both the government and the private sector – expanding rapidly as I initiated this research, it became clear that a study of the drone today would be difficult to pin down. I mean this less in terms of getting a grasp on the extent of the contemporary use of drones than grasping its significance, as drone use grows and evolves, within larger assemblages of war, security, and power.

As I explain further in the next chapter, there is a sense across scholarship focused on the drone today that the drone is continuously exceeding our conceptual grasp. This is in large part due to a narrow focus in a lot of work on the object of the drone, which leaves out of frame the broader networks of technologies, practices, and discourses that this object is embedded in and is productive of. It is also due to the assumption prevalent in a lot of this scholarship that the drone is a radically new technology and that this "newness" has shaped the nature of some of the key political, legal, moral, and ethical questions and debates about drone warfare today, especially as the future of drone development points toward automation and autonomy.

Yet, the concept of the drone is not new. In fact, we might trace the origins of the killer drone to Britain in the early twentieth century with the creation of drones like the Larynx, which was envisioned as an offensive weapon of war, much like a very rudimentary Predator. The history of drone technology from these early programs to the machines flying today in the skies of Afghanistan, Pakistan, and Yemen – and increasingly in domestic airspace – is a choppy history, characterized by inconsistent government and military interest and mundane budgetary challenges. While the Reaper and the Predator are viewed by many as the stars of the contemporary battlefield, earlier drones like the Lightning Bug were often overshadowed by other aerial technologies like satellites, spy planes, and stealth fighters. Despite this less-than-glamorous history, this research shows that much can be learned about the landscape of today's drone wars by studying these earlier programs.

In studying this history of the drone, I have found that two key trends emerge as significant: the increasing importance of information to warfare under the rubric of intelligence, reconnaissance and surveillance; and a shift toward more dynamic, speedier, and individualized targeting practices. I argue that this shows that the widespread use of drones today represents a culmination of attempts in war to effectively link these two trends, creating a practice I call lethal surveillance – with the armed Predator collapsing the space between identifying and killing targets. With the contemporary drone strike we see how practices of surveillance and knowledge production and practices of killing and targeting are becoming one and the same. The concept of lethal surveillance allows us to see how techniques of Western state power and knowledge production are merging with

practices of killing and control in new ways, placing the drone within longer modern histories of scientific thinking, liberal governance, and Western violence.

Lethal Surveillance and Critical War Studies

This research is situated within a growing body of scholarship across critical geography and security studies, attentive to the materialities of contemporary war, seeking to place the drone within a wider set of practices and assemblages and histories. The drone here is a complex object emerging out of tangled histories of colonial control and state violence (Shaw and Akhter 2012, 2014; Satia 2014), assassination (Grayson 2012), air power strategy (C. Kaplan 2006), and public debate and secrecy (Walters 2014). Particular attention is given to the aerial view from above and the space of air more broadly in shaping contemporary drone wars (Adey, Whitehead, and Williams 2012, 2013). As Tyler Wall and Torin Monahan remind us, "Drones are a combination of the new and the old: a new aerial surveillance and killing system with capabilities previously not offered by conventional air power, coupled with an older cosmic view of air mastery through technological speed, verticality, and vision" (Wall and Monahan 2011, 241). In his recent writings on drones and modern warfare, Derek Gregory also has advocated taking into account a historical genealogy of the drone. As he shows, situating the drone within a longer history of bombing and visual surveillance helps us to better understand the geographies of war that the drone shapes and is embedded in today (Gregory 2013). Across his writings on drones, this genealogy allows Gregory to see the new visibilities produced by the contemporary Predator as effects of a privileged and one-sided view, one that often renders invisible the violence and history of colonialism

that it is shaped by and continues to produce (Gregory 2011a). It further allows Gregory to place the drone within a contemporary shift in warfare more generally, arguing that the drone is one of the technologies of what he calls 'everywhere war' – characterized by 'event-ful' violence that can occur anywhere, and that is more spatially blurred, or 'slippery,' than the spaces of traditional warfare (Gregory 2011b).

Drawing on, but also widening Gregory's framework, I argue that lethal surveillance has emerged as a practice of power where the production of knowledge and the decision on life/death have become one and the same, as seen through the developments of ISR and targeting. This is a genealogy of the geography of contemporary Western wars that have been produced not in spite of, or in contrast to, but *as a direct result* of a longer modern history of Western warfare that involves the twin histories of scientific and technological advancement and liberal governance. The drone, in other words, not only allows us to see these histories of science and governance in relationship to one another, but also the centrality of war and violence to both, expressed today through such practices as pattern of life analysis, automated killing, and the global targeting of select individuals. Furthermore, in understanding the drone through the practice of lethal surveillance, I seek to begin the work of connecting the drone to other practices and techniques of power. For example, when viewed through the lens of lethal surveillance, links become visible between the surveillance of the drone and the cyber-surveillance programs of the NSA in terms of how individuals and data are coded and analyzed.

Viewing the drone through the lens of lethal surveillance thus supports recent scholarship on the material histories of contemporary practices of war, but it also

challenges or complicates them. For example, in his analysis of Western air power, Mark Neocleous argues that through the development of air power, and especially its early application to colonial control, we can see that war and police must be thought of as interrelated. War, in other words, has always been police power, where police is understood, following Foucault, as governing bodies, ordering populations and more generally tied to the maintenance of social order (Neocleous 2013, 580). Drones, he argues, make this police basis of war clear, where drones allow for the "dream of a permanent police presence across the territory" (Neocleous 2013, 590). Neocleous' argument points to the importance of knowledge production to the development of air power, which we see clearly in the emergence of lethal surveillance. Yet lethal surveillance points less to a tendency of police power across the twentieth century than to the importance of war and violence to practices of knowledge production, scientific development, control, and targeting, and to the relation between these practices. Perhaps instead, today's drone reveals police power as always already war power (Foucault 2003, 15).

In a similar register, the emergence of lethal surveillance through drone warfare shows that while not always technically possible, the linking of surveillance and killing – the hunter-killer strategy – has long been an aim of Western military strategy.[2] Further, the military itself has often seen this as a more-than-human technical challenge. What this results in is not bureaucratic death-dealing with increasingly automated and unaccountable decision making devoid of human thought (Shaw and Akhter 2014) but instead the culmination – or *clear expression* – of the violence of Western thought itself.

[2] For a broader consideration of this hunter-killer strategy see Chamayou (2012).

Finally, and connected to this point about seeing clearly the connections between killing and knowing through the contemporary drone, the frame of lethal surveillance and the history it emerges from provides a way, following Caroline Holmqvist, into the human experience of war. As she writes, "The question becomes one of how to integrate accounts of the real/material – of the actual injury sustained by actual people in contexts of war – with accounts of how we come to see what we see, know what we know and think what we think about war: accounts of the epistemologies of war" (Holmqvist 2013, 548). These registers are collapsed in the practice of lethal surveillance making it especially difficult to see the effects of war on human bodies, on political structures, on human thought. As Holmqvist argues, it is necessary to think war in human terms, and especially with the growing emphasis of automation in drone development, these terms include the longer modern practices of war, scientific development, and Western governance that have shaped contemporary drone wars. An effective critique will need to understand and untangle these interconnected relations of power.

Toward a Geo-History

For my empirical research, I relied primarily on archival sources. For the first period (the early years/World War I and II), I concentrated on drone development programs in the UK because there was more of an effort by the British to develop drones for use in war. While many of these programs were not ultimately successful, as we see in the next chapter, I was more concerned with understanding the aims of these drone programs: how drones (or "pilotless aircraft" as they were called) were seen to be useful to those supporting the programs, and the challenges that these programs faced. I

gathered information primarily from the British National Archives. Online, I accessed digitized Cabinet Papers, which are available from 1915 and include memoranda and decision papers significant to the British Cabinet. At the Archives in London, I accessed records from various military aviation departments, aircraft production files, the War Office, and the offices of the Armed Forces, among others. As far as I have been able to find, there is only one secondary source that specifically focuses on British drone development during this period (Farquharson 2002). I therefore supplemented my archival research with broader histories of aircraft and weapons development and air power strategy during this time.

Primary research for the second period (Cold War/Vietnam War) was undertaken through the National Security Archives maintained by George Washington University, Congressional reports, and military and policy report from various US government agencies and think tanks. I focused on military and CIA aircraft development programs (as we see in the next chapter, the CIA has a long history of interest in drone research) as well as Congressional interest in drone technology, including assessments of this technology from the General Accounting Office (GAO –now Government Accountability Office). Secondary sources on these drone programs largely take the form of memoir-histories written by participants in these programs or closely related aircraft programs.

For the third period (late 1990s/Kosovo War), I accessed unclassified NATO documents, various Congressional committee and GAO reports, military reports and statements, and policy reports. I also relied on the National Security Archives as well as secondary sources on the development of the Predator. While this time period covers various examples of drone deployment, especially of the Predator, I chose to focus on

Operation Allied Force at the end of the 1990s because it marked the most significant use of drones during this period.

My approach in studying this archival material was to try to get a sense of what kind of narrative threads emerged across these time periods. What story can be told by examining these programs? How did the aims and foci of these programs change over time and is there a significance to this? And ultimately, how do these narratives relate to the contemporary landscape of drone development and use? Not surprisingly, there are many narratives that can be told from this material. For example, there is a story here about the relationship between scientific research and development programs and the military; we can see how the drone provides an interesting insight into this relationship as many of these programs were unsuccessful, limited by a lack of support, or overshadowed by larger and sexier aviation programs. There is another, related story about the relationship between private civilian contractors and the military, as a number of these programs were developed in part through companies like Ryan Aeronautical Company and Lockheed. Civilian inventors were also avid proponents of early drone technology, pitching ideas to the British government. The story narrated in this thesis is aimed at trying to understand the emergence of the practice of targeted killing today and how we see (or do not see) this reflected across the development of these drone programs.

This project therefore draws heavily on the concept of history as genealogy in its approach. In his essay "Nietzsche, Genealogy, History," Foucault outlines the difference between traditional historical analysis and genealogy. For Foucault (and Nietzsche), the mistake of historical analysis is that is centers around a search for the true origins of things. This search for the origin or the true essence of things tends to place a pre-

determined framework over historical analysis rather than being attuned to the messiness and interconnectedness of history itself. As Foucault writes:

> However, if the genealogist refuses to extend his faith in metaphysics, if he listens to history, he finds that there is 'something altogether different' behind things: not a timeless and essential secret, but the secret that they have no essence or that their essence was fabricated in a piecemeal fashion from alien forms…What is found at the historical beginning of things is not the inviolable identity of their origin; it is the dissension of other things. It is disparity. (Foucault 1977, 142)

In this spirit, my thesis seeks to displace the question of the origin of the drone to understand instead the complex and heterogeneous beginnings of the contemporary drone wars. Approaching the study of the drone this way allows us to see important components of its development that might otherwise remain out of view. As Foucault writes about history in this sense, in *Society Must Be Defended*, "The role of history will, then, be to show that laws deceive, that kings wear masks, that power creates illusions, and that historians tell lies. This will not, then, be a history of continuity, but a history of the deciphering, the detection of the secret, of the outwitting of the ruse, and of the reappropriation of a knowledge that has been distorted or buried. It will decipher a truth that has been sealed" (Foucault 2003, 72).

This approach allows us to see today's drone strikes through the lens of the emergence of lethal surveillance – one of the primary insights from this project. But importantly, this emergence of lethal surveillance should not be viewed as teleological, or as the final outcome of the trends of information gathering and targeting (or the broader histories of knowledge production and violence) that are identified in this examination. Rather, lethal surveillance is best viewed as a current and evolving set of relations of power that have crystallized (even if temporarily) in a particular moment. Genealogy

does not only involve a tracing out of multiplicitous lines of decent, but also an attention to the present that is open to these dynamics of power. As Foucault writes, "Emergence is always produced through a particular stage of forces. The analysis of the *Entstehung* [emergence] must delineate this interaction, the struggle these forces wage against each other or against adverse circumstances, and the attempt to avoid degeneration and regain strength by dividing these forces against themselves" (Foucault 1977, 148-149).

I have chosen the term "geo-history" to try to capture this double aspect of genealogical analysis. History here refers to the genealogical concept of history described above. What geography adds is a reminder of the importance of the arrangement of these relations of power in a particular spatio-temporal moment. The task of the genealogist is not just to turn to the past, but also to map out the dynamics of the present. I have sought to do both across this dissertation, with Chapters Three, Four, and Five especially serving to draw the contours of lethal surveillance in the contemporary moment. As I explore in Chapter Six, writing and deciphering these relations and interconnections also serves as a potential avenue for critique.

In the next chapter, I present the research from the three periods I studied. The material reflected here is not meant to provide a comprehensive account of the development of drone technology, but rather to tell a narrative about this development. As I argue in this chapter, what can be seen through this history is the emergence of lethal surveillance through the coming together of two trends in war: intelligence, reconnaissance, and surveillance, and dynamic targeting practices. The rest of the dissertation seeks to unpack and support this argument through a close examination of

different aspects of the practice of lethal surveillance. Chapter Three examines the concept of lethal surveillance through the lens of the contradictions of liberal violence. It uses as its starting point the (often illiberal) violence that underpins Western warfare and liberal governance more generally. It seeks to connect this violence, which is often rendered invisible, to techniques of liberal governance more generally. Drawing on Foucault and Foucauldian analysis, as well as postcolonial and subaltern studies, this chapter argues that today's lethal surveillance represents developments in liberal governance where the use of force is becoming more individualized and predictive. This is seen in the shift to targeting individuals and to the use of 'pattern of life' analysis for identifying targets. We see, in other words, a downscaling in targeting, from nation and region to the mobile and individualized body. Because this method of killing is so tied to knowledge production and techniques of liberal governance, through making the above argument this chapter contributes to scholarship on biopolitics and liberalism as well as the character of liberal warfare today. Most importantly, it focuses on the relationship between the two.

Chapter Four examines the spatio-temporality of lethal surveillance, particularly tracing out the inside/outside divisions inherent in the techniques of knowledge production and killing outlined in Chapter Three. This, in a sense, is another related 'contradiction' of liberal governance and Western warfare, where there is a differentiation of the actions of the state – certain actions apply to 'us' versus 'them' and 'here' versus 'there.' By examining the emergence of sovereign power in the practice of lethal surveillance, I argue that contemporary drone strikes reflect less a disappearance of the importance of territory and sovereignty to justifications of the use of force than a

reconfiguration of their meanings. Grounded in an understanding of territory that is more networked and dynamic, the spatiality of the drone strike is best viewed topologically; from this conception of territory emerges a new landscape for the projection of power, which I call ephemeral sovereignty.

Chapter Five looks at the importance of technology to the concept of lethal surveillance in order to better understand the goal of information dominance in the trend of increasing ISR capability. It thus situates lethal surveillance within a history of modern technological rationality. I argue that lethal surveillance is a culmination of this technological rationality; that it is a dream of the modern scientific desire for global mastery and control. Here I read Descartes' call to mastery and domination alongside the military and that state's striving for total "command and control."

Chapter Six turns to the question of resistance to the practice of lethal surveillance. Because of the scope of the practice of lethal surveillance, it is increasingly difficult to imagine effective practices of resistance to contemporary drone strikes. Here I examine recent artistic efforts to critique and make visible the effects of the global drone wars. In particular, I focus on Josh Begley's Metadata, #NotABugSplat installations, and James Bridle's Dronestagram. These projects mobilize technology and artistic performance to challenge logics of secrecy and killing at a distance. They also reveal the processes of knowledge production that underpin lethal surveillance and connect it to other security practices. I argue that effective critique needs to take into account the intersecting histories of scientific thought, violence, and governance that give rise to lethal surveillance and I conclude by reflecting on these possibilities.

Chapter 2

The Drone is Not New: Watching, Killing, and the Emergence of Lethal Surveillance

The concept of today's drone, whether viewed as a lethal weapon or surveillance technology, is not new. Early drones, in fact, like the Larynx developed in the United Kingdom in the 1920s and 1930s, were envisioned as offensive weapons of war, much like a very rudimentary Predator.[3] The history of the drone through the twentieth century and into the twenty-first is best characterized by a series of fits and starts, with inconsistent military and government interest in drone programs. These programs were often overshadowed by other research efforts, like satellites and the U-2 spy plane during the Cold War, or limited by technological and scientific challenges. In this sense, the history of the drone is not as exciting in comparison to other military technologies, yet I contend in this chapter that much can be learned about the landscape of today's drone wars by a close examination of these programs, and in particular the reasons why drones were considered to be desirable at different moments in American warfare.

My concern with the history of the drone stems from the observation that people are struggling to understand exactly what a drone is and what its significance is today precisely because they proceed from the assumption that drones are a "game-changing"

[3] In this project, I primarily use the term "drone" in the singular and as a catch-all term. As I am using it, the term is inclusive – it names the early Larynx, the Cold War era surveillance drones, and today's Predator, and although they do not make much of an appearance in this project, micro-drones as well as larger drone-like systems such as Gorgon Stare could fall under this label also. If a definition is required I want to keep it loosely defined not because I am meaning to collapse these diverse objects into one thing but conversely because I want to delimit attention not simply to the objects themselves but to the what they do in the world, what practices they enact and are a part of.

or radically new technology.[4] Much of the literature on drones sees the technology as ringing in a new mode of warfare, particularly with the targeting at a distance capability, marking a qualitative shift in the way war is fought. Trying to pin down this distinctiveness, writers such as Fred Kaplan (2013) focus on where drones are being used—an argument that geography matters in assessing the uniqueness of drones. Following Kaplan's argument, it is not the outcome of a drone strike that is new, but rather where these strikes are occurring, outside of traditional battlefields.[5] Others focus on the 'who' of the drone, in terms of how it is operated.[6] At the most basic level, drone operators are controlling the drone, but in this literature it is impossible to escape the drone's unmanned or robotic quality, whether in the context of its distancing effect or in relation to the future possibilities of drone development in automation and autonomy.[7]

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[4] This is true also of the vast "Revolution in Military Affairs" literature. For an extensive RMA bibliography see "Bibliography," The RMA Debate, accessed April 6, 2015, http://www.comw.org/rma/bib.html

[5] Kaplan mentions in his essay an interesting comparison between civilian casualties of non-drone strikes versus drone strikes, and that the latter are actually significantly lower than the former. As he argues, however, we do not "expect" civilian casualties outside of war zones in the first place, making the number of civilian casualties from this perspective actually quite high (F. Kaplan 2013).

[6] The who of drone as in *who is targeted* is rarely a frame for investigating the drone, with some notable exceptions like reports by the Stanford and NYU Schools of Law and Human Rights Watch, which I discuss in Chapter Three. See Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law (2012) and Human Rights Watch (2009).

[7] The "who" of the drone also clearly points to the institutions that have and use them. Not just a tool or weapon of the military, some of the most controversial debates about the use of drones today center on CIA drone strikes. Derek Gregory (2011b) uses this as part of the case for defining today's battlefield as "slippery spaces," where the link between war and geography has come undone. In other words, wars are no longer fought by only the military. Also "technology creep" is happening rapidly across government service (for example, the use of drones by the US Customs and Border Control) and into private and business sectors. Recent examples include Domino's "DomiCopter" public relations campaign to deliver pizzas and Amazon's unveiling of its drone delivery plans.

While not nearly an exhaustive account of how the drone is being studied today, these lines of inquiry demonstrate that the implications of asking after the distinctiveness of the drone are significant and touch on some of the key legal, moral, political, and ethical questions and debates about our experience of war (and security more generally) today. For example, if the drone presents us with a radically new killing machine, with the potential to make killing automated, can we regulate its use according to current laws of war or are they themselves now outdated?[8] Are state sovereignty and/or the distinction between war and peace now a thing of the past? Is it possible to have compassion in a war we don't see or are not physically present for? Is drone warfare more or less ethical because it limits risk to soldiers? Is the identification of those we kill necessary anymore to the ethics of war, as signatory strikes and 'pattern of life' analysis would suggest?[9] And perhaps, conversely, for those who see the effects of their strikes more intimately than before - the drone operators, whose aircraft often linger above after a strike - how should we make sense of their experience returning from the 'battlefield'?[10]

Drones are being increasingly incorporated into the movement of cargo and good (Koebler 2013).

[8] The need for the law to "evolve" is a common refrain in this line of argument, a frequent topic for discussion at a February 2013 symposium by the Minnesota Journal of International Law titled, "The Future of Warfare: The Law of Tomorrow's Battlefields." See also, Radsan (2012).

[9] The Obama administration's drone strike policy has been criticized for masking the number of civilian casualties the strikes cause by labeling all "military-age males" in a target zone as combatants even if their identities (and one would also presume, their ages) are not known (Becker and Shane 2012). On pattern of life analysis, where people are targeted for their activity but their identities are unknown, see Cloud (2010).

[10] A 2011 Air Force study concluded that half of the drone operators studied have "high operational stress" associated with doing their jobs. The same report concluded, however, that only 4% were at risk of posttraumatic stress disorder. These 4%, according to the study, witnessed the effects of their strikes up close; as one author said: "Collateral

These questions, to which more could be added, are clearly wide reaching and quickly evolve into a range of fields from international law and global geopolitics to science and technology studies. The answer to the question "what is a drone?" is therefore difficult to pin down because the drone is always exceeding the scope of the question, both today and historically. In taking account of the history of the drone, I seek to better understand the reach and complexity of today's drone wars, and particularly how the drone is embedded in a variety of security (and increasingly non-security) practices. In addition to shifting the lens of inquiry temporally, I also argue for a shift in the question from "what is a drone?" to "*what does a drone do?*" Asking what it does or can do not only demystifies the drone as an object, but also focuses attention on the networks that the drone is embedded in, linking the drone to other techniques of power, killing, and surveillance.

Taking this approach, I show that examining the history of the drone reveals two trends in Western warfare: (1) the increasing importance of intelligence, surveillance, and reconnaissance (ISR) and (2) the development of dynamic targeting. These trends converge today in a practice I name *lethal surveillance*, where ISR capabilities are linked directly to targeted killing in an attempt to close the temporal and spatial gap between the two. In short, lethal surveillance is where mechanisms of surveillance and knowledge production and decisions on life and death become one and the same. What is significant about today's drone is not its ability to minimize risk by removing the human from war, or to target at a distance. While important characteristics of the drone today as well as

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damage is unnerving or unsettling to these guys." See Bumiller (2011). See also Mark Bowden's (2013) account of an operator's first strike experience.

historically, these do not explain why the drone now has become such a central technology of war. Rather, its import lies in how it mobilizes the twin histories of the practices of ISR (and the use of information in war more generally) and lethal targeting. Through this analysis it becomes clear that what the drone does now is enact lethal surveillance; more importantly, the practice of lethal surveillance emerges today out of a much longer modern history of scientific development, war, and liberal governance.

In the next three sections of this chapter, I focus on the principle periods in the history of US drone development: the early years during World War I and II, the Cold War, and the 1990s. I selected these periods and the programs described therein because they highlight key developments in drone technology across the twentieth century. Across these time periods we see some notable key changes in how modern Western war is waged. Figure 2-1 provides a brief introduction into these periods and serves as a point of reference for the significant trends I pull out of this history. Though the focus shifts at different times between surveillance and targeting, we can see a tendency toward lethal surveillance reveal itself across these periods. In the last section of the chapter, I show how it is through these three periods that we can see the emergence of lethal surveillance today. As I argue at the end, taking this history into account reframes how we view the contemporary landscape of drone wars; what is at stake ultimately in understanding the drone through its history and through the lens of lethal surveillance, is that the drone is no longer viewed in isolation. Rather, the practice of surveillance and killing that the drone enables is intimately connected to other practices of security and control.

	WWI/II	Cold War/Vietnam War	1990s/Kosovo Air War	Post 9/11
Drones desired for	-extending range and kind of attack -moral effect on enemy -reducing cost/risk	-extending range of intelligence, reconnaissance, and surveillance (ISR) -reducing political risk -decreasing costs	-increasing ISR capabilities in relation to targeting (info dominance) -limiting political risk -decreasing costs	-increasing ISR capabilities -combining ISR and targeting more effectively -decreasing costs (lives and dollars)
Space of war	fixed territories, fixed targets	fixed territories, fixed and changing targets	fixed territories, fixed and changing dynamic targeting	fluid territories (global battlefield), emergent and dynamic targets
Characteristics of war	'Traditional' modern war, strategic and tactical bombing	Beginning of information/electronic warfare, guerrilla war	'Humanitarian war' linked to air war, surgical strikes, asymmetric war	War on terror, counterinsurgency, humanitarian war revisited, asymmetric

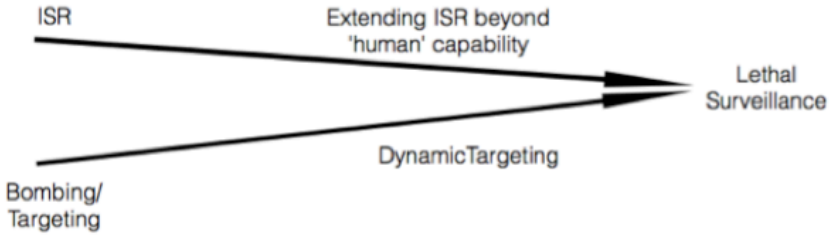

Fig. 2- 1 The Emergence of Lethal Surveillance

Early Years: Pilotless Bombing[11]

Perhaps surprisingly - because the idea and development of unmanned aircraft today points toward the future - the history of the drone traces alongside, and even predates, the history of manned aircraft.[12] If we take into account the use of balloons and even the history of automata more generally, the history of drone technology could be

[11] Research into this early period comes primarily from The National Archives in the United Kingdom, referred to as TNA. Citations for these documents are included the footnotes.

[12] The steam-powered "Aerodrome" had short successful tests flights in 1896 over the Potomac River, to which, according to Kenneth Hough (2013), one newspaper wrote, "no man has as yet really flown, but on May 6 a machine did. With that machine men will fly."

traced back even further.[13] Early research and development on what we can identify as crude precursors to today's Predator technology dates to the beginning of the twentieth century, and is shaped by the events, challenges, and technologies used in World War I and World War II. A focus here on two major programs in the United Kingdom[14] serves to demonstrate the desired goals at the time for developing drone technology for use in war, as well as the challenges faced in achieving these goals.[15] These programs were set within a broader context of a radically changing landscape of modern warfare, both in terms of the range and scope of technologies of killing deployed and the spaces in which war was fought, notably with a significant extension of the battlefield into the air.[16] In comparison to the battlespaces of today's Western wars, World War II is best characterized as exemplary of "traditional" modern war with relatively fixed territories

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[13] See for example, "The Use of Balloons in War," *New York Times*, July 12, 1863.

[14] There were drone programs in the United States before World War II, but they were less developed than UK programs, although this clearly switched after 1945. For a brief overview of US drones and similar aircraft programs as early as 1915 see McFarland (1995, 8-25).

[15] At the beginning of the twentieth century, drone technology fell into two main categories: aircraft developed for target practice and gunnery drills, and aircraft developed as a weapon. The work on these two main types greatly influenced each other, but each was always held by the UK Air Ministry as working toward distinct and separate goals, which is true in the United States as well. In the UK, it appears that the first drones developed were targets, although it is unclear for what use drones were first imagined. Interestingly, we find that through this early period, work on target planes and drones for warfare increase and decrease inversely with each other; targets often were used as models or bases for building war drones. There was much debate within the Air Ministry over which research lines should be prioritized, part of a broader concern about funding experimental research in the face of growing war expenditures. See TNA: Ministry of Aviation AVIA 9/7 [1941 Ministry of Aircraft Production Memorandum: Increased Aircraft Production] and TNA: Air Ministry AIR 20/137 ["Notes on the History of Pilotless Aircraft Development at the R.A.E. by J. Sudworth"]

[16] A number of technological (and non-technological) advancements before and during the World Wars accounted for these dramatic changes in warfare, allowing for war to be conducted at increasing scales and complexities. See for example, Boot (2006, 205-304); van Creveld (1989, 153-232)

and aims against fixed and defined targets. Nevertheless, it is important to remember that at this time Western powers were trying to understand and develop the concepts and practices of strategic and tactical bombing (van Creveld 1989, 191; McFarland 1995, 3-4). To a large extent, therefore, the early drone programs reflect less an understanding of the potential for unmanned technologies in war as distinct from manned ones, than the working out of the possibilities of aerial bombing in war more generally.

The Larynx and the Ram, the two major early UK projects, produced different conceptions of how unmanned aircraft might be used as a weapon of war. The Larynx was initially designed to be mechanically controlled and fly a predetermined path or "home" in on a target.[17] At the end of its flight, which ranged from 200-500 miles, it was programmed to either drop bombs or dive into the target itself, effectively becoming its own bomb. The Ram, by comparison, was smaller and designed to be wirelessly controlled from an operator in a nearby manned aircraft. It got its name from its ability to "ram" into enemy air formations, acting as a decoy to draw enemy fire, or for bombing enemy formations while piloted aircraft remained at a safe distance.

[17] See figure 2-2 for one rendering of a pilotless aircraft in 1935 similar to the Larynx.

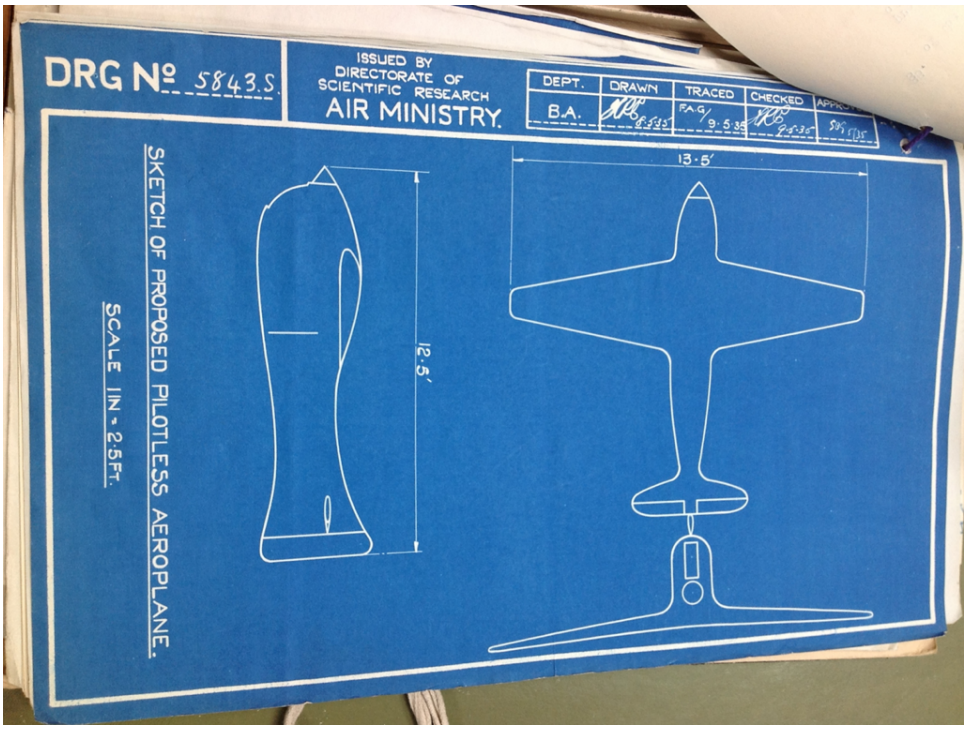

Fig. 2- 2 Sketch of Proposed Pilotless Aeroplane, 1935. TNA: AIR 2/1313.

The development of both technologies was characterized over the 1920s, 1930s, and 1940s by a series of starts and stops due to a variety of factors, but primarily because of budgeting priorities—funding was often interrupted because of the war effort—and technical setbacks largely related to achieving an adequate degree of accuracy from the weapons. The Larynx and the Ram were seen as desirable for three main reasons. First, they extended the range and kind of attack, whether against a target on the ground or another in the air. In part, the aim of extending the point of attack beyond the human pilot reflected a goal of limiting risk to the pilot's life, but of greater concern was figuring out how to fly at night or during poor weather conditions, when a human pilot was at a disadvantage. The work on the Larynx and the Ram also spurred new ideas about how a military might attack from the air; indeed, the drone fostered the concept of the long-

range attack.[18] It also opened up the possibility of continuous (and inexpensive) bombing, to effect the "local collapse of morale."[19]

Second, and related, the development of these drone programs was promoted because of the drone's perceived "moral effect" on the enemy. There are two aspects to this perception. An unmanned long-range bombing attack was seen to be so terrifying and unstoppable – in both its continuity and its surprise – that it would not only cause crippling physical damage but it would also have a significant impact on the resolve of the civilian population and the enemy's military.[20] The British Air Ministry also may have come to this conclusion because of its own fears.[21] Reports of German pilotless aircraft and reports of attacks by the German V-1 were a clear motivator for continuing work on the Larynx in particular.[22]

Third, the Air Ministry saw the potential of pilotless aircraft to reduce costs and risks to personnel as an advantage over manned aircraft. Unlike today's discussion of

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[18] As one proponent of pilotless aircraft noted, drones, "open up vast new possibilities in air war, and that everything must be done to keep this country abreast or ahead of others." TNA: AIR 20/382 ["Summary of position regarding pilotless aeroplanes in R.A.F – May 1925, p. 3]

[19] TNA: AIR 39/60, ["Memorandum on Pilotless Aircraft Operational Uses" p. 1-2].

[20] TNA: AIR 39/60 ["Memorandum on Pilotless Aircraft Operational Uses" p.1-2].

[21] The Air Ministry gathered information from classified sources, for example intelligence reports, but the press also assisted in generating fears about drones. For example, in 1938 Le Figaro published an article on the German Rocket Bomb with a 120-130 km range and a speed of 1500 km/hr, writing that, "As this is greater than the velocity of sound it will be impossible to tell when and from which direction it is coming." TNA: AIR 20/382 ["Extract from the French Press 'Le Figaro', 10.5.38"]. The role of fear and its relationship to sound in air war needs to be studied further. See Goodman (2012).

[22] For example, one Informant Report cites reports of "epoch-making" unmanned bombs TNA: AIR 20/382, ["Informant's Impressions of Trip in AUSTRIA" 1938, p.2]. German development of this technology was a frequent topic in meetings of the Pilotless Aircraft Committee.

limiting risks in the sense of saving soldiers' lives, the Air Ministry primarily framed the reduction of risk to personnel in the ability to increase the reach of the aircraft by flying in areas previously seen as too dangerous. Also of concern was the potential of the drone to provide a more cost-effective means of bombing due to fewer required personnel and potentially cheaper building materials. Promises of mass-producing the Larynx, for example, put the costs of the aircraft significantly lower than its manned counterparts, although this was never realized in practice.[23] The inability to radically drive down cost was another reason the drone programs were put on hold.[24]

While never brought into mass production, both the Larynx and the Ram underwent significant tests. In early tests of the Larynx one observer noted that, "some of the aeroplanes went out of control and performed evolutions unknown to man."[25] Tests in 1925 in Iraq, and again in 1928, were of mixed success, contributing to the starting and stopping of the research program.[26] The largest challenge to developers was accuracy, due to the reliance of the Larynx's mechanical control on unpredictable meteorological

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[23] TNA: AIR 2/1313, ["Note on Larynx Aircraft for Air Staff by I. Bowen" p. 2].
[24] TNA: AIR 20/382, [Written memo A.I.3.B. No.13 5.10.1938].
[25] TNA: AIR 20/137 ["Notes on the history of pilotless aircraft development at the R.A.E. by J. Sudworth" p. 1]. Jeremy Packer and Joshua Reeves (2013, 321-322) observe that during this time drones, and it seems machines more generally, were compared to beasts and wild animals in need of domestication. There was thus an ambivalence about this technology – on the one hand being autonomous from human control and on the other, needing to be brought under that control. This helps explain why such emphasis was given to the precision of drone weapons, seemingly less a concern for precision weaponry (manned weapons were not necessarily more precise) than a fear of the uncontrollable.
[26] These tests in Iraq, which were conducted with live ammunition, are intriguing and more research needs to be done about how they were conducted. They point also to an early colonial history of the drone and the timeline of these tests match up with Royal Air Force "colonial bombing" of Iraq and other colonies during the interwar period. See Neocleous (2013); Satia (2013).

data.[27] Frustrated with this lack of reliability, one official noted in 1925 that the Larynx was essentially "a very long-ranged but very inaccurate and expensive gun."[28] A radio-controlled version was proposed in an effort to increase the accuracy, but controlling it wirelessly at such a great distance, outside of visual range, proved difficult during test flights (see figure 2-3). Similar technical difficulties plagued the Ram. Not only was controlling the Ram from the control aircraft difficult mid flight - as one operator observed "one loses all sense of distance between target and Ram"[29] - but the wireless technology at the time was not sufficient for accurate control.[30] These difficulties of achieving sufficient control and accuracy, together with limited funding, resulted in the shuttering of both projects by the end of World War II, in favor of greater focus on long-

[27] The issue of accuracy was intensely debated as a reason to continue or halt pilotless aircraft programs. One memorandum on Pilotless Aircraft Operational Uses in 1941 argues that the Air Staff was misled to focus on accuracy when deciding to bomb with pilotless aircraft and that they were no different than the also inaccurate piloted bombers – it was "blind bombing" either way. The memo goes on to state in favor of pilotless aircraft, "…there is no instruction passed to a pilot which cannot just as well be passed to an automatic control, provided, of course, that the instructions are restricted to normal changes of course and altitude and do not involve aerobatics and other violence maneuvers." TNA: AIR 39/60 ["Memorandum on Pilotless Aircraft Operational Uses" p. 2]. The personal convictions of some officials in favor of producing an operational pilotless aircraft were also important factors to continued work on the Larynx program in the interwar period (Farquharson 2002).

[28] TNA: AIR 20/382, ["Pilotless Aircraft," p.2].

[29] TNA: AIR 20/382 ["Report of Conference on Pilotless Aeroplane" 2 October 1930, p. 9].

[30] At one point in the 1930s the Pilotless Aircraft Committee explicitly recognized that the limits of wireless technology had been reached and it decided to pause work on the Ram until a breakthrough in this area was made, although they also acknowledged that they were not sure what this would be. This clearly places the drone within an intersecting history of wireless communication, something that has only become more important to the operation of drones since.

range missile development. It can be argued, however, that these early experiments laid much of the groundwork for the missile programs.[31]

Fig. 2- 3 1932 Test Flight of Wireless Controlled Pilotless Aircraft. TNA: AIR 2/1346.

Cold War: Unmanned Reconnaissance

Missiles and nuclear warheads framed the security landscape in the years after World War II. While research on drone technology halted briefly after the war, it

[31] This twin birth of the drone and the cruise missile marked the beginning of an intersecting history of the two technologies. One place to see this connected history today is in the Missile Technology Control Regime (MTCR), which was established in 1987 as a non-binding understanding among signatory countries to monitor and control the trading and development of missile technology. Its initial concern, which the United States has endorsed, was nuclear technology, but it shifted quickly to cover weapons of mass destruction in general. What is interesting about the MTCR in the context of today's warfighting technologies is that drones are currently included within its remit: missiles, cruise missiles, UAVs, RPVs, target reconnaissance drones are all classified as unmanned aerial vehicles more generally. See "Missile Technology Control Regime, accessed April 6, 2015, http://www.mtcr.info. This is beginning to change perhaps as the US government has started to allow the export of armed drone technology (Hennigan 2015).

reemerged in the United States during this second period with the drone conceptualized in a radically new way. The drone, seen now as a tool for intelligence, reconnaissance, and surveillance, was one of many technologies developed by the US government to gather an array of intelligence data through electronic means, also including data from photographic imagery, radar and other electronic signals. This period set the groundwork for what has now developed into electronic or information warfare (Poteat 1998).

Intelligence, surveillance, and reconnaissance have always been significant aspects of warfare (Keegan 2003), but there is a notable shift after World War II as information takes on new strategic and tactical roles (Bousquet 2009). The Cold War marks the beginning of electronic and information warfare, with the growth of signals intelligence (SIGINT) often favored over human intelligence (HUMINT). As a result of this shift, emphasis was placed on gathering large amounts of data in a variety of forms; it is at this time that operational systems analysis is pioneered by analysts, for example at the RAND Corporation, in order to cope and make sense of these 'big data.'[32] In addition to gathering intelligence, the United States also sought to intercept, destroy, or deceive enemy radar and other electronic communications, with drones also used to some extent for these purposes (Ehrhard 2010, 25).

The biggest motivation for reinvesting in drone development programs is tied to the success and limitations of the U-2 spy plane. This context of manned aerial reconnaissance is crucial to understanding how the drone was conceptualized, and why it

[32] For a sense of the nature of this shift for both computation and analysis in general see F. Kaplan (1983). Paul Edwards (1996) also describes the close relationship between the development of the computer and US foreign and military policy.

was ultimately not that popular and did not get developed further during this time.[33] Gathering information from the other side of the Iron Curtain was one of the biggest security challenges throughout the Cold War, and the means of gathering this intelligence shifted significantly from human to technological. The kinds of data sought also changed, with emphasis placed on radar, electronic signals, data transmissions and the like. The development of the U-2, which carried on board a variety of sensors, was led by the CIA with support from the Air Force in response to the need to penetrate Soviet territory while avoiding surface-to-air missiles. Not only did this require a technological breakthrough - the ability to fly at high-altitude and later to fly with stealth - but it also marked a notable policy shift toward using aircraft for intelligence gathering. As a CIA history notes, "Peacetime reconnaissance flights over the territory of a potential enemy power thus became national policy. Moreover, to reduce the danger of conflict, the President entrusted this mission not to the armed forces, but to a civilian agency - the CIA" (Pedlow and Welzenbach 1992, 322).[34] Furthermore, with the development of the U-2 and other reconnaissance capabilities, we see a growing desire for faster means for gathering information. As President Eisenhower remarked after being shown photographs from an early 1956 U-2- flight, which made multiple passes in a short period

[33] Some companies in the United States that produced target drones during World War II, like the Ryan Aeronautical Company, acquired contracts to develop them into reconnaissance drones. Others, like Lockheed, added drones to their sizeable manned reconnaissance and stealth projects.

[34] The military eventually took over control of aerial reconnaissance flights but the history of U-2 development foreshadows the CIA's involvement in drone flights after 9/11.

of time over Egypt in response to an English-French attack there, "Ten-minute reconnaissance, now that's a goal to shoot for!" (Pedlow and Welzenbach 1992, 119).[35]

While the U-2 was largely successful during the Cold War in obtaining information, there was often reluctance to use the aircraft because of the potential political risk of the plane coming down in Soviet territory. Some government contractors, including Ryan Aeronautical Company and Lockheed (Skunk Works), began developing reconnaissance drone prototypes in the late 1950s in part as an effort to minimize this risk. After Francis Gary Powers was shot down over the Soviet Union in 1960, Ryan Aeronautical obtained a contract from the Air Force to develop its Firebee target drone into a reconnaissance plane that would eventually be nicknamed the Lightning Bug (Wagner 1982, 15). As U-2 flights were halted after the Powers' incident a Ryan official noted, "We believe that for some missions the cockpit must be taken out of the airplane, put on the ground and let the pilot fly the vehicle from there" (Wagner 1982, 13). Similarly, in 1962 Lockheed developed the Tagboard, shown in figure 2-4. Both the Lightning Bug and the Tagboard drones were designed for release from another aircraft (Rich and Janos 1994, 262). Figure 2-5 depicts a Lightning Bug launch. The CIA also directly sponsored the development of a long-range reconnaissance drone called Aquiline through the Douglas Aircraft Company and a short-range drone called Axillary, although both projects were tabled by the early 1970s (Pedlow and Welzenbach 1992, 339).

[35] While the processes of the U-2 photographs and data still took time, this desire for near real-time data collection is an important aspect of the military's development of ISR and one that the drone in part fulfills in the 1990s and after 9/11.

Fig. 2- 4 Lockheed's Tagboard Drone. From http://commons.wikimedia.org/wiki/File:Lockheed_D-21B_USAF.jpg (accessed April 6, 2015).

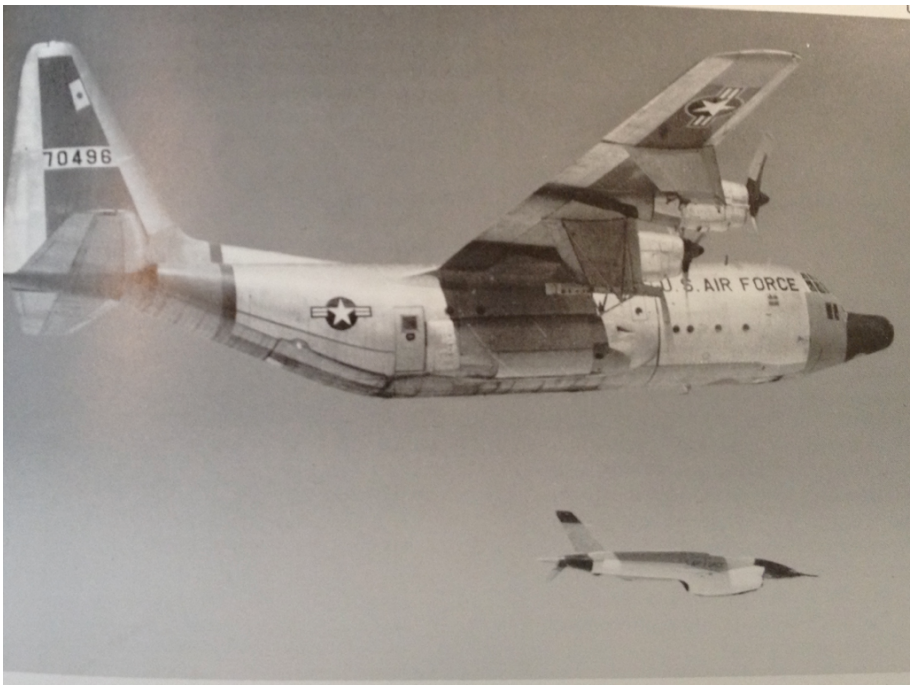

Fig. 2- 5 Ryan Aeronautical's Lightning Bug Drone Release from Mother Aircraft (Wagner 1982, 49)

Both the Tagboard and the Lightning Bug flew missions over China and across Southeast Asia in the late 1960s with varying degrees of success. They generally flew pre-programmed missions and took photographs. They also were used to identify and map enemy missile sites, either with radar and other monitoring equipment or by acting as a decoy to draw surface-to-air missile fire (Schuster 2013). This work carried into the Vietnam War, where it is estimated that drones were flown in approximately 3,000 mission flights (Comptroller General of the United States 1981, 1). In Vietnam it seems that the drone missions expanded somewhat; the drones were used for taking photographs of targets for air strikes, recording post-bombing damage, uncovering and identifying new targets, and dispersing propaganda material and electronic listening devices (Comptroller General of the United States 1981, 2). In an assessment of the use of drones in Vietnam, made at the beginning of the 1980s, the Government Accounting Office (GAO) noted that the "most advantageous" military use for drones was in hostile environments or for boring or tiring missions. Despite some promising success, "due to the shortage of RPV [remote piloted vehicle] equipment, many of these applications were severely handicapped" (Comptroller General of the United States 1981, 2).[36]

This observation by the GAO points to a common theme and an intriguing question of drone research and use throughout the Cold War period: despite the usefulness and stated need for the technology, it never really got off the ground, primarily due limited program funding and the inability of proponents to bring in major contracts. There are three main reasons for this. The first is the "pro-pilot bias" within the Air

[36] Note also that it is around this time that the term RPV (remotely piloted vehicle) crops up. It sometimes is used synonymously with the term drone and sometimes to indicate a different kind of aircraft.

Force; drones were seen as "too drab and unexciting" and as limiting pilot career advancement (Comptroller General of the United States 1981, 20). In fact, it was the Army that continued a consistent drone research and development program after the Vietnam War. The second reason was the lack of knowledge across the government about the various deployments of drones, because the programs were so classified and compartmentalized. Secrecy also limited the programs' public visibility. Third, in part because of this limited visibility, the drone competed with more popular satellite and stealth technology programs. Despite being promoted as less expensive and less politically risky when compared to the U-2, the small group of researchers and officials who advocated for drones generally could not raise the profile of their programs.[37] As the editor of *Armed Forces Journal International* noted in 1981, "RPVs may have met their enemy. Could it be us?" (Wagner 1982, iv)

While reconnaissance drone programs were overshadowed and ultimately shuttered during the Cold War, they clearly contributed to a larger effort of extending the geographic range and technological capability of intelligence, reconnaissance, and surveillance. As an early history of the drone written at the time concluded:

> And where from here? The applications of a plane that thinks and responds as though it were a pilot are unlimited. Already the Firebee has proven it has the eyes of a man through television. It can be remotely controlled by a 'pilot' from a presentation of television pictures secured by a camera in the vehicle and relayed in real time. Digital programmers give it a capability of thinking and responding at precise intervals to complicated commands. With a photographic memory, it is capable of [capturing] intelligence in an environment too hostile for man to survive. This is what RPV is all about. (Wagner 1982, 91).

[37] In his history of Air Force drones, Ehrhard argues that it was less the pushback and skepticism of pilots and more the better competing systems like satellites and long-range missiles that limited drone programs during this time (Ehrhard 2010).

This comment clearly points toward the subsequent twenty or so years of drone development.

Kosovo Air War: The Predator and Dynamic Targeting

The two most successful drone research and development programs pursued by the US government in the 1990s - the Predator and Global Hawk - sought to increase both ISR capabilities of the drone and its data transmission capability.[38] US military engagements during this decade emphasized high-tech air power and surgical strike operations, particularly in ones like the NATO air strikes over Kosovo, now labeled as operations of 'humanitarian war.' With a focus on "effective and swift" airstrikes, the United States could frame itself as engaging "on behalf" of others while limiting risk to itself.[39] This logic clearly carried over to the second Iraq war after 9/11 with the concept of 'shock and awe' (Coward 2013), although it should be noted that despite the operational goals of quick and decisive engagements both Kosovo and Iraq lasted much longer than predicted by the military. Also during the 1990s, the role of air power and intelligence gathering began to shift to become more engaged in the process of dynamic targeting, identifying new targets as the operations continue (called "flex targeting" in the

[38] RAND and DARPA studies in the early 1970s identified the data link as one of the key technological challenges necessary to improve for future effective drones. This was partly navigational (and overcome with GPS) as well as related to the transmission of large amounts of real-time data (Ehrhard 2010, 20). Data transmission continues to be an important aspect of drone development today. As a retired Air Force Major General articulates, "It's about the datalink, stupid" (Bowden 2013).

[39] As Anthony Cordesman argues, NATO leadership mistakenly believed that its campaign in Kosovo would be only twelve days at the most (Cordesman 2003).

Kosovo air war) (Cordesman 2003, 116).[40] With all of these changes, the necessity of transmitting information in real time became increasingly clear.

During the 1980s, some limited drone research had continued within the military, mostly by the Army. As mentioned previously, this is most likely an indication of the pilot bias within the Air Force, although the commitment to developing drone programs slowly increased across the Department of Defense over the decade (US General Accounting Office 1984, 18). The Army's program focused on target designation and ISR, seeking to provide the "eyes of man" on the battlefield to remote viewers. As the GAO noted, "the system is to extend the eyes of the brigade and division elements during combat to as far as the range of their artillery weapons" (Comptroller General of the United States 1981, 12)

In the mid-1990s, DARPA established a high-altitude drone program, catalyzing development of two of the primary larger drone systems used today: the Predator and the Global Hawk. The DARPA program came out of an effort by Congress at the end of the 1980s to consolidate the Department of Defense's drone development programs. One of the requirements for DoD drone development was "Long Endurance Reconnaissance, Surveillance, and Target Acquisition (RSTA) Capability" (Drezner, Sommer, and Leonard 1999, 5-6). As a RAND Corporation report explains, "The intent was to provide warfighting commanders in chief (CINCs) with the capability to conduct wide-area, near-real-time RSTA, command and control, SIGINT, electronic warfare, and special-

[40] In describing flex targeting, General John Jumper, Commander-in-Chief US Air Forces Europe, explained in a 1999 testimony to Congress, "Our new processes took advantage of our ISR resources to identify 'pop up' targets of opportunity" (Quoted in Cordesman 2003, 116).

operations missions during peacetime and all levels of war. The CINCs would be able to exercise this capability against defended and denied areas over extended periods of time" (Drezner, Sommer, and Leonard 1999, 6). Drones would allow for persistent or loitering surveillance capabilities, compared to the episodic surveillance provided by satellite and manned aircraft (Ehrhard 2010). Other requirements included short-range drones and medium-altitude endurance drones. The Predator, considered a medium-altitude drone, was bid on and developed by General Atomics in 1995, envisioned primarily for electronic and photographic intelligence gathering. Teledyne Ryan (previously Ryan Aeronautical Company) also began work in 1995 on the Global Hawk, a larger and higher-altitude drone compared to the Predator).

These programs were put to the test in the late 1990s, particularly in the United States and NATO air strikes over Kosovo. NATO used a variety of drones for intelligence gathering over the Balkans from 1995 to 1999. These included the Predator, the Pioneer (developed by the Navy), and a German drone (Dixon 2000, 4). As the conflict continued, however, and in particular when Operation Allied Force intensified the bombing of Kosovo in 1999, drones began to play a larger role in real-time target identification and assessment in ongoing operations (Dixon 2000, 5). Operation Allied Force was significant in part because it "saw an unprecedented use of unmanned aerial vehicles."[41]

Incorporating drones into the targeting process - the "hunter-killer" strategy - proved beneficial for a number of reasons. At an operational level, drones shortened the

[41] From a US Department of Defense 2000 report to Congress quoted in Cordesman (2003, 299).

amount of time it took to go through the targeting process. In relaying real-time data, drones could direct a bomber to a target, watch the target (often undetected), and assess the aftermath of the bombing (Dixon 2000, 7). This helped facilitate the development of more dynamic targeting. As one Air Force General described, "We must fully develop the technology and tactics to rapidly strike targets. To do this, we need equipment that will provide real-time imagery and target location directly to our fighter and bomber crews. This will allow us to reduce the barriers between the 'sensor' and the 'shooter in the targeting cycle – what we call 'attacking the seams'" (Cordesman 2003, 117). Drones also were used after the end of air strikes to monitor peacekeeping operations and treaty enforcement. More generally, the use of drones in the targeting support capacity also proved beneficial in maintaining public support for NATO intervention. The drones could carry out important reconnaissance work without risking pilots' lives, especially since NATO had set a limit for how low manned planes could fly in an attempt to avoid casualties. Billed as a "humanitarian war,"[42] NATO's intervention focused predominately on air strikes, and the drone allowed it to both decrease risk as well as save money.[43]

The use of drones by NATO in Kosovo presented some challenges, however. While making the targeting process more efficient, there were still places where the time between target identification, assessment, and attack could be further shortened. At least

[42] The concept of humanitarian war and the use of air strikes are taken up in Chapter Three.

[43] Because of this, funding for drones increased after Operation Allied Force. It is important to note, as Anthony Cordesman argues, that the justifications for the incorporation of drones into the targeting process (ex. risk, inability of manned aircraft to fly low) did not always match the reality or the practice of the actual military engagement. Cordesman argues that the intervention would have been more effective at achieving its goals if NATO had not put these limits on the use of air power (Cordesman 2003).

two aircraft, manned or unmanned, had to confirm the target. The target's location had to then be relayed to the bomber aircraft or to a missile control center. Each extra step took more time, and increased the risk of communication error in the transmission of data. The more dynamic the targeting process became during the bombing campaign, the greater the need for a speedier and accurate process. In 2001, arming the Predator was seen as one way of further contracting the kill-chain by putting more of its functions into one platform (Bone and Bolkcom 2003, 23-24).

Second, while the drone itself could be navigated using GPS satellite links, when a drone had identified a target, there was difficulty in communicating its precise location - in translating the imagery that the drone was producing and feeding back into geographical coordinates. This was partially solved by the development of the PowerScene computer program, which mapped drone video feed into a terrain visualization program, from which the coordinates usually could be determined and sent to the bombing aircraft (Dixon 2000, 16). In general, the military's handling of geographic data, and especially the interoperability of this data between systems, needed improvement. As Cordesman concluded, "More generally, Kosovo reinforced the need for a comprehensive US effort to create a detailed topographic map of the entire earth for military purposes" (Cordesman 2003, 304). In a Borgesian development, after Kosovo the Department of Defense considered creating a "Global Information Grid," which "would cover the entire world, and link all of the service and intelligence systems together and which is tied to both operators and support elements…It is unclear how quickly such a system can be created, but it conceptually would change much of the US approach to warfare" (Cordesman 2003, 299).

Finally, the capacity of drones to produce real-time video feed created some new and unexpected problems, which one assessment of Operation Allied Forced termed "UAV micromanagement" (Dixon 2000, 19). Video feeds could be sent to and monitored from practically anywhere - for example, as far away as Washington, DC - creating a situation where more senior commanders and officials could be involved in day-to-day operations. As one report noted:

> According to CAOC staffers, the General (SACEUR) would on occasions telephone the CAOC demanding that UAVs break off from their tasking and go and look at things of interest to him. [General] Clark was in daily telephone contact with Kosovo Liberation Army chief, Hashim Thaci, and immediately after these conversations would dispatch a UAV to look at what often turned out to be spurious targets. (Quoted in Dixon 2000, 12).

Despite these challenges, with NATO's use of drones in Kosovo it became clear that drone reconnaissance functions could be linked directly to real or near-real time targeting. These functions were seen to make the targeting process faster, more efficient, and more effective in a more dynamic targeting environment. Linking reconnaissance to increased lethality, Cordesman writes:

> Kosovo again demonstrated the need for theater-level expeditionary capability to rapidly deploy the intelligence, reconnaissance, targeting, and battle damage assessment assets needed to get maximum benefit from both air power and long-range land artillery systems. The combination of JSTARS, the ABCCC, U-2, unmanned aerial vehicles (UAVs), ad satellite reconnaissance coverage – plus target analysis – proved critical in giving NATO strike-attack sorties more lethality. (Cordesman 2003, 296)

Furthermore, the focus on air power, and the use of drones in particular, allowed NATO countries to limit the political risk of sending troops into combat – setting a future precedent of a desire for limited "surgical" deployment.

Post-9/11: The Emergence of Lethal Surveillance

The drone programs in the 1990s, particularly the Predator and the Global Hawk, had experienced the most consistent development and success to date of any drone program. The 9/11 in 2001 attacks and the subsequent invasion of Afghanistan brought unprecedented interest in the drone, however. While proposed earlier in the year, a slew of money came from Congress after 9/11 to arm the Predator and to produce more unmanned aircraft, which were quickly deployed to Afghanistan and then Iraq. The Global Hawk drone was sent to Afghanistan, with mixed success in the field, even though it had not yet graduated from the development phase. By 2007, the popularity of drones had grown to such an extent that Congress required the Department of Defense to pursue unmanned aircraft acquisition programs over manned ones, unless the need for a manned aircraft over an unmanned one could be justified (Gertler 2012). In military operations in Iraq and Afghanistan drones have played a key role in both counterterrorism and counterinsurgency operations,[44] providing "eyes in the sky" with the ability to monitor the movement of individuals for long periods of time and also to provide precision targeting capability. Furthermore, there is a push to make drones more automated, stemming from the increasing use of "pattern of life" analysis and signature strikes by the Obama administration.

Perhaps more significantly, the use of drones has also expanded widely beyond the battlefields of Iraq and Afghanistan, an ever-evolving aspect of contemporary drone

[44] Fred Kaplan (2009) reports that the debate between counterinsurgency (COIN) and counterterrorism (CT) has been ongoing within the Obama administration. He distinguishes between operations that focus on supporting the local population and government building (COIN) versus strategic targeting of Al Qaeda members (CT). See also Ucko (2013).

wars. Armed drones have been used to extend and prosecute the global war on terror to Pakistan, Yemen, and Somalia, notably by both the military and the CIA. One of the most high profile cases of targeted killing in the last few years is that of Anwar al-Awlaki on September 20, 2011, significant in part because he was an American citizen.[45] The United States also deployed drones to assist with regime change in Libya; indeed the use of drones was a part of the Obama administration's case for arguing that the US military engagement in Libya was not actually a war.[46] Unarmed drones also are used widely now by US Customs to patrol the border and by state and local police departments (Booth 2011).[47]

Toward Lethal Surveillance

While this is only a cursory sketch of recent developments, the contemporary landscape of the use of drones clearly is complex and evolving. However, bringing the above history to bear on the present, we can see that the processes of surveillance and

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[45] Awlaki's son, age 16, was also killed by a drone strike in Yemen a few weeks later. Jeremy Scahill (2013) provides a very detailed account of Awlaki and the decision of the United States to place him on a target list in his book *Dirty Wars*. President Obama justified the attack during a speech at the National Defense University saying, "Of course the targeting of any American raises constitutional issues that are not present in other strikes – which is why my administration submitted information about Awlaki to the Department of Justice months before Awlaki was killed, and briefed the Congress before this strike as well. But the high threshold that we've set for taking lethal action applies to all potential terrorist targets, regardless of whether or not they are American citizens. This threshold respects the inherent dignity of every human life" (Office of the Press Secretary 2013).

[46] The lack of ground troop deployment and limited engagement with enemy forces were two of the justifications the Obama administration gave for not applying the War Powers Resolution to Libya (Savage and Landler 2011).

[47] The US Customs and Border Protection Agency is also lending out its unarmed Predator drones to domestic law enforcement agencies and has considered arming these drones with "nonlethal" weapons (Sengupta 2013).

targeting have started to collapse into each other after 9/11 into a singular process of lethal surveillance. Over time, across these three historical periods, intelligence and surveillance have taken on a more prominent role. In this capacity drones initially played more of a sideline or supporting role: for example providing a nonhuman alternative to other surveillance and reconnaissance technologies during the Cold War. Drones did not offer significantly different capabilities in terms of intelligence gathering, but they could mitigate the potential political fallout of a downed manned spy plane. The drones built by Ryan Aeronautical and Lockheed during this time were among many proposed technological solutions for mass information gathering behind the Iron Curtain.

By the 1990s, however, drones like the Predator were no longer a 'nonhuman' alternative, but rather provided a new 'more than human' (or 'beyond human') capability. In the Kosovo air war, for example, targets could be better observed through drones compared to manned planes. Drones become important tools on a complex and dynamic battlefield for shortening the time between identification and execution of targets and for assessing bomb damage due to their ability to stay above the area observed. This trend has only intensified with drones like the Global Hawk and the Predator, and with increased emphasis on data processing capacities and automation. These drones are essentially information-processing machines (especially taking into account the larger assemblage of operator bases and command centers the drone is embedded in), making the drone significant as one of a number of technologies attempting to gather and process data with increasing speeds and greater analytical capabilities. The push to automate drones is a part of this development and is important in the context of lethal surveillance less for the ethical dilemmas posed by robotic killing (although this is surely not to be

ignored) but more because of what this shift to automation means for information in war. What automation signals is the speeding up of war and the related information overload, to the point where we as humans can no longer participate in war in the same way; it moves too fast and the analysis is too complex. Thus, proponents of automation argue that machines (because they are better and more accurate data possessors) will inevitably be necessary for identifying targets and making decisions to kill.

Second, this trend to developing greater and more complex information gathering and processing capabilities is tied to changes in bombing and targeting more generally in Western military engagements. Over these same periods, we see dramatic changes in targeting from a focus primarily on targeting predetermined fixed sites or areas, to an ever more dynamic targeting process. During World War II and much of the Cold War, the targets selected for real or potential bombing campaigns (such as nuclear deterrence plans) were primarily fixed in place, such as bridges, roads, and military sites, or even towns and cities. The earliest drones, like the Larynx, were designed to target these kinds of fixed locations. Drones used during the Cold War assisted in locating and identifying these, along with a host of other technologies. Targeting practices began to change, however, in the 1990s. Targets remained largely fixed sites, but target lists were updated more regularly, becoming more dynamic lists. In turn, the space of the battlefield – specifically, where bombs were dropped—was viewed as more dynamic. Targeting is fine-tuned even more in the post-9/11 campaigns in Afghanistan and Iraq. The war on terror, however, brings a significant shift in this development: not only is targeting accelerating today, but there is also a qualitative change in the nature of the target, from the site to the individual (Gregory 2014, 14).

The emergence of lethal surveillance after 9/11, therefore, brought about a merging of two key processes of modern warfare: intelligence gathering/information processing and targeting. How these have each changed and developed over the twentieth century impacts how they are deployed today, but their fusing together also produces new practices and landscapes of war. Furthermore, the military's current capability to identify and kill a person through the same action, while technically new, is the culmination of a longer modern history of warfare inflected with developing histories of scientific knowledge production and practices of killing and control.

I evoke the concept of lethal surveillance to describe a particular practice of the projection of state power in the present, shaped by a reconfiguration of the connections between techniques of liberal governance, Western warfare, and scientific development. Being able to see that lethal surveillance is *what the drone does*, today, helps us both to better understand the contours of today's drone wars and the complex intertwinement of surveillance and targeted killing, and ultimately to unpack how this practice exceeds the drone.

This history and the emergence of lethal surveillance raise different questions, pushing us to widen our view when trying to make sense of today's drone wars. For example, given the growing importance of information and ISR to warfare, and the longer modern history of scientific and technological development these information gathering practices are embedded in, what kinds of logics of mastery and control form the foundation of the expanding use of drones? Or, with the collapsing together of techniques of knowledge production and targeting, as drone strikes becomes more individuated and rely on pattern of life analysis, how might we understand changes in the

way liberal war is now waged as biopolitical practices are increasingly deployed in warfare? Finally, in what ways does the practice of lethal surveillance exceed the drone, pointing to connected practices such as the National Security Agency surveillance and data collection programs, the rise of the Joint Special Operations Command (Niva 2013), and US border security and domestic police practices? These questions, from the many that present themselves from this history, require a greater critical engagement not only with today's deployment of drones but also with how techniques of power and knowledge production are merging with practices of killing and control in new and evolving ways.

It is to these different aspects of lethal surveillance that the dissertation turns: first to the history of Western violence and governance it emerges from (Chapter Three), then its spatiality and its relation to sovereign power (Chapter Four), next its technical and scientific character (Chapter Five), and finally to the question of what lethal surveillance means for possible avenues of resistance to contemporary drone wars (Chapter Six).

Chapter 3

Manhunts and Metadata: Liberal Violence, the Body, and Targeted Killing

> Drone strikes are a far cry from the atomic vaporizing of whole cities, but the horror of war doesn't seem to diminish when it is reduced in scale. If anything, the act of willfully pinpointing a human being and summarily executing him from afar distills war to a single ghastly act. (Bowden 2013)

In the previous chapter, I argued that the contemporary drone is best viewed through the lens of what it does and that this leads to an understanding of the drone as a technology for the practice of lethal surveillance. This practice names the coming together of practices of surveillance and information gathering practices with those of targeting and killing. Viewed in this way, we might then see the drone as just one articulation – a very good one – of lethal surveillance, significant not just for the practices of killing and control it describes but also for the histories embedded in it. This chapter begins the task of tracing out the contours of these practices and histories by asking after the nature of the violence that underpins lethal surveillance, namely liberal violence.[48] I argue that through the drone we can see the contradictory nature of liberal violence, as well as the tendency of this violence to become increasingly individualized and informationalized. It follows that an examination of the violence inflicted by drones

[48] By liberal violence I mean violence undertaken by and/or in the name of Western governments or institutions. While there is both synchronic and diachronic differentiation among these government structures, they generally understand themselves to be shaped by the broad "liberal" ideals of democracy, freedom, individual human rights, and property ownership. This chapter is very much interested in understanding the often illiberal violence that these liberal regimes produce as well as how liberal governance shapes its character.

through the lens of lethal surveillance also provides a way into studying the broader structures of liberal governance and control, and how they are changing in significant ways.

I make this argument by first examining, in the next section, the violence that the drone produces and how this violence is transmitted to and seen by Western audiences. I draw on studies such as *Living Under Drones* that try to detail the effects of drone strikes from the perspective of the ground, in contrast to the military's perspective from the air, placing these strikes within the context of precision bombing and humanitarian warfare. I also pay attention to how this violence is translated to the operator through the screen of the drone, as well as to the US military, government, and American people more generally, trying to understand how the violence the drone strike inflicts is mediated and/or sanitized to those 'back home.' I ask what kind of broader history of Western liberal violence these strikes are a part of, turning to critical theorizations from postcolonial and subaltern studies that view liberal violence as simultaneously internally contradictory and an inherent aspect of Western liberal governance. In the second section, I examine the character of this violence, specifically the development of pattern of life analysis and the shift in targeting practices to focus on individual mobile bodies. I place these developments within a broader context of biopolitical governance to show how targeting methods have changed, also producing new kinds of bodies targeted by the drone. Finally, I conclude by bringing these two analyses together – of the contradictory nature of liberal violence and of the changing character of liberal governance – to show how the drone strike, and lethal surveillance more generally, is not an aberration of

liberal governance, but rather lies at the heart of how power today is produced and sustained.

Drone Strikes, (Il)liberal Violence, and Humanitarian Bombing

One of the most prominent, also one of the few, studies of the effects of drone strikes from an on-the-ground perspective was conducted by the International Human Rights and Conflict Resolution Clinic at Stanford Law School and the Global Justice Clinic at NYU School of Law. The authors of the report, *Living Under Drones: Death, Injury and Trauma to Civilians from US Drone Practice in Pakistan*, draw upon media reports, drone strike aggregators like one run by The Bureau of Investigative Journalism, and over 130 interviews with drone strike victims, witnesses, humanitarian officials, and others in Pakistan. The overall aim of the report is to introduce the effects of US drone strikes in the FATA region of Pakistan into the US policy and domestic debate over the use of drones, a debate that largely has ignored or deliberately misreported conditions on the ground. These effects not only include the killing and injuring of civilians, but the report also details how drones cause significant damage to economic, social, and political everyday life, in a region where people live in constant fear of a drone strike. As the authors write, the report "aims to draw attention to a critical gap in understanding, specifically about life under drones and the socio-economic impacts of drone strikes on civilians in North Waziristan." (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, 55) One of the most effective ways that the report does this is in a section titled "Voices from Below" that closely examines three drone strikes, describing them in part through the reflections

of eyewitnesses. From these accounts, the authors argue the strikes in Pakistan not only have killed civilians, but also have caused extensive property damage, economic hardship, psychological anxiety and trauma, as well as fear over participating in community activities and gatherings and assisting drone strike victims, due to the danger of a second strike, or "double tap" (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, 55).

In documenting life under threat of regular drone strikes, the report reveals an alarming disconnect between what is reported by the US government and the majority of Western media, on the one hand, and the actual violence experienced in the FATA region, on the other. One powerful table presented in the report compares US government statements on civilian casualties, characteristically reported as zero or in the single digits, to independently gathered evidence on strikes (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, Appendix C). Demonstrating competing understandings of the effects of the strikes, one entry for a March 2011 strike includes a US official's anonymous statement to the press: "There's no question the Pakistani and U.S. governments have different views on the outcome of this strike 'on a *jirga* on March 17. The fact is that a large group of heavily armed men, some of whom were clearly connected to Al Qaeda and all of whom acted in a manner consistent with Al Qaeda-linked militants, were killed" (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, Appendix C). This is contrasted to a quote from a *New York Times* article: "Although 11 Taliban fighters were reported killed, between 19 and 30 civilians also died, including tribal elders and local police officers" (Stanford

International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, Appendix C).[49]

This is just one example of how the effects and violence of the drone strikes are masked, sanitized, and represented by the government for Western audiences. This sanitation of the violence has disastrous implications not only for those in Pakistan but also, the authors of the report argue, for the structure of democratic governance within the United States. As they write:

> The ways in which the US has used drones in the context of its targeted killing policies has facilitated an undermining of the constraints of democratic accountability, and rendered resort to lethal force easier and more attractive to policymakers. The decision to use military force must be subject to rigorous checks-and-balances; drones, however, have facilitated the use of killing as a convenient option that avoids the potential political fallout from US casualties and the challenges posed by detention. (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, 143)

In this sense, drones make it easier to kill than to detain because that killing remains largely hidden from (Western) view.

This masking of the violence of the drone strike works also through how those killed in a strike are named and categorized. As the report details, the Bush and Obama administrations, along with many media outlets, have a policy of recording those targeted and killed as militant if they are (or appear to be) men of military-serving age or, in

[49] The table also includes now-CIA Director John Brennan's infamous April 2012 statement that the government had, "no information about a single civilian being killed" in US drone strikes (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, Appendix C).

military parlance, "military-aged males."[50] Those who are killed are translated into militants, regardless of whether their identities are known. This process of translation and mediation of drone violence can be traced back to the very beginning of the post-9/11 drone strikes. The report describes one of the first strikes in February 2002 where three men were killed, who later were determined by non-government sources most likely to be civilians. While the identities of those killed were not known, a Pentagon spokesperson declared that "'[w]e're convinced that it was an appropriate target,' but added, '[w]e do not know yet exactly who it was'" (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, 10). Using a negative method of identification (or what we might call identification through negation), the Pentagon also stated that there was nothing to indicate that those killed were civilians.

Another report, *Precisely Wrong: Gaza Civilians Killed by Israeli Drone-Launched Missiles* by Human Rights Watch, examines the Israeli use of drones in six strikes at the end of 2008 and beginning of 2009. As the title of the report indicates, the authors find the Israeli Defense Force (IDF) at fault for not taking adequate measures to avoid civilian deaths. Despite the advances in accuracy of the missiles fired during the strikes, the report argues, "drones, much like sniper rifles, are only as good at sparing

[50] The report is critical of both the government and the media for labeling the victims of drone strikes as either civilian or militant because there is a tendency to expand the definition of militant as described above, and because using the term militant renders those deaths lawful and acceptable, whereas there is significant question as to whether targeted killings of these sort are in fact lawful. As the authors write, "This binary distinction, in turn, feeds the political discourse around drone warfare, enabling commentators and analysts to make sweeping claims about the program's efficacy and accuracy. The civilian/'militant' distinction is extremely problematic, however, from a legal perspective, and also because of the questionable reliability of the information on which 'militant' determinations are based" (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, 30).

civilians as the care taken by the people who operate them" (Human Rights Watch 2009, 3). The IDF did not make the effort to distinguish between a "legitimate target" and a civilian, despite the fact, as the report claims, that it had the ability to clearly see the difference between the two through the video feed from the drone (Human Rights Watch 2009, 17). The report further criticized the IDF's warning system to the population of Gaza, which included dropping leaflets and media broadcasts, measures that were both too vague for civilians to take any substantial protective measures, according to the authors, and also had the effect of transforming those who remained after a warning into a viable target in the eyes of the IDF (Human Rights Watch 2009, 7).

Similar to the Stanford-NYU report in its concern for harm to civilian lives and in its drawing on eyewitness testimonies, *Precisely Wrong* focuses its argument on the contradictory disjuncture between what the drones are capable of in terms of accuracy and the results of the strikes: 29 civilians were killed during the period studied. For surveilling targets, the drone allows for continuous "persistent look," providing ample opportunities for individuals to be identified. The information that the drone collects through various sensors can "provide a clear image in real time of individuals on the ground, with the ability to distinguish between children and adults," and even to read license plates (Human Rights Watch 2009, 10-11). The missile fired from the drone can "see" as well, allowing for last-second cancellation of strikes (Human Rights Watch 2009, 12). Furthermore, the missiles attached to the IDF drones were themselves more precise than more conventional bombs, with the ability to target and destroy a specific room as well as to limit collateral damage (Human Rights Watch 2009, 10). As one witness to a drone strike on the courtyard of a UN shelter set up at the UNRWA Asma

Elementary School in Gaza City, killing three people, said, "We heard the sound of one explosion. It was by drones, because if it was an Apache [helicopter gunship] it would have caused wide destruction. This missile only destroyed the human beings. In the morning I saw their blood and small pieces of flesh on the walls at the entrance of the toilet rooms" (Human Rights Watch 2009, 27). One question remains unstated and underexplored by the HRW report, however: why did the IDF kill civilians *despite* having the most accurate surveillance and targeting technology available?

By focusing on the death and injury of civilians one, presumably unintended, effect of these reports, especially HRW report, is to reinforce an understanding of the drone as a technology of precise targeted killing. Despite its documented destructive effects, the concept of the "surgical strike" is largely left uncriticized. This relationship between precision and the drone can be traced clearly back to the 1990s, if not before[51], which given the deployment of the drone in the Kosovo air campaign raises the question about the role and context of "humanitarian war" to understanding the contemporary drone strike. Returning to this history places the violence produced by and through the drone into the context of humanitarian war and precision-guided bombing, and this interrelationship between the two.[52] In this context, the drone strike becomes one of the

[51] Recall the debates around the accuracy (or lack of) of the Larynx project at the beginning of the twentieth century. Also, while area bombing is generally associated with Vietnam, Derek Gregory (2013, 45-47) reminds us that there was a distinction in the bombing campaigns of North and South Vietnam, where in North Vietnam precision was emphasized –even, of course, if "pinpoint bombing" was not achieved in effect.

[52] This relationship between precision and humanitarian war may be traced at least to World War I where the inaccuracy of weapons was used as justification to target civilians with the hopes that the conflict would come to an end faster, limiting total destruction (C. Kaplan 2013, 20-21). This argument also was made in favor of the use of the atomic bomb.

ways that bombing (and subsequent killing) by the US government is both justified, in the name of liberal values, and at the same time sanitized.

In the Kosovo air war, unarmed drones were a part of an assemblage of technologies and practices that enabled bombing at a safe distance (to pilots) and monitoring the effects of the bombing campaign. Manned planes were generally not allowed to fly below 10,000-15,000 feet so as not to risk being hit by surface-to-air missiles. Drones were able to further limit this risk, at least in theory, by assisting with target identification and bomb damage assessment. Thus drones were integrated into a kill-chain that became increasingly dynamic as the campaign wore on and at the same time sought to protect those doing the killing. While the effect of this policy (essentially bombing at a vertical distance) had disastrous effects on the ground and led perhaps to greater loss of civilian lives than if NATO planes had been able to fly higher (Cordesman 2003, 85-86), the NATO-led intervention was the first such operation given the name "humanitarian war."[53]

The concept of humanitarian war has been studied and developed by what can be called the "new wars" scholarly literature, primarily from the discipline of political science, which identifies a pre-9/11 break in the way modern Western warfare is

[53] Cordesman describes the hesitancy of the Western governments to call Kosovo a war. As he notes, "It may be that one of the lessons of modern war is that war can no longer be called war" (Cordesman 2003, 59). Describing the case for intervention as a moral imperative, President Clinton said at the time, "We act to protect thousands of innocent people in Kosovo from a mounting military offensive…By acting now, we are upholding our values, protecting our interests, and advancing the cause of peace" (Clinton 1999). Similarly, Tony Blair argued, "We must act: to save thousands of innocent men, women and children from humanitarian catastrophe, from death, barbarism and ethnic cleansing by a brutal dictatorship…" (Blair 1999).

understood and waged.[54] This shift, often associated with NATO's involvement in the Kosovo War, including the air campaign of Operation Allied Force, is characterized (1) as a move away from the destructiveness of the World Wars and the high military casualties of Vietnam toward a form of warfare that seeks to minimize casualties and (2) as fought in response to a less traditional military threat (for example, a non-state adversary or intervention in a civil war). As a short review of some of the major thinkers of new wars (Kaldor, Shaw, and Duffield) indicates, this particular body of scholarship outlines some of the key characteristics of (new) Western warfare around the end of the twentieth and beginning of the twenty-first century, while remaining firmly within and largely uncritical of the larger aims, structures, and discourses of liberal governance and humanitarianism that these new wars are embedded in. It is nevertheless useful to review these scholars' writings on war because they provide insight into the ways that war and violence are justified through a liberal lens.[55] While they do not take up the drone strike explicitly, we can see how it might easily fit within these narratives.

For Mary Kaldor, new wars are defined by the disintegration of the traditional role of the "centralized, 'rationalized,' hierarchically ordered, territorialized modern state" (Kaldor 2006, 17). In her book, *New and Old Wars*, she draws upon the case of

[54] The "new wars" literature is expansive. Much of the work focuses on this break, usually around the Kosovo War, but we might say that there is a second new wars literature that focuses on 9/11 as another shift in the way Western war is waged. The new wars literature also parallels and draws upon Revolution in Military Affairs (RMA) scholarship, which focuses primarily on technological advancements in warfare such as precision guided missiles and air reconnaissance and intelligence technologies. New wars scholarship differs from RMA in its emphasis on the social, political, and economic reasons for changes in Western warfare (Kaldor 2006, 4).

[55] This review of the new wars literature is far from exhaustive. I seek to provide a sample of mainstream thinking about changes in Western warfare, not including the vast and often technical RMA literature.

Bosnia-Herzegovina and the Kosovo air war, and in a recent edition also the recent war in Iraq, to demonstrate how the globalized environment of the late twentieth century saw the emergence of a new type of organized violence, where the differences between war, organized crime, and violations of human rights are blurred. Also blurred are the distinctions between inside and outside the modern state, state aggression and repression, and local and global scales of conflict (Kaldor 2006, 2). At stake for Kaldor is the legitimate use of violence, which she sees as belonging to the state and based on the state's interests and goals. She sees this legitimacy as eroding in the new wars, which she finds motivated more by identity politics than state interests. For her, the Kosovo war is shaped by a conflict between extreme and exclusivist nationalists and secular multicultural pluralists, with the latter largely marginalized. This led to great violence waged against the civilian population and civil society, evidenced in its most extreme in ethnic cleansing and other methods drawn from a more decentralized form of guerilla warfare (Kaldor 2006, 8-9, 46). According to Kaldor, the failure of the UN, NATO, and other international organizations to end the violence quickly was because the conflict was not understood in these terms, rendering high-level political talks and humanitarian intervention ineffectual. Similarly, Kaldor reads the US involvement in Iraq in terms of the violence produced by conflict among sectarian and identity-based groups and the challenges this presents to US forces. She remains largely silent on the reasons the United States entered the conflict in the first place.

In response to the violence of the new wars, Kaldor calls for a cosmopolitan approach that upholds the norms of human rights and a universal humanitarianism, promoting secular multicultural groups through what she calls "cosmopolitan law

enforcement." As she writes, "Whereas the soldier, as the legitimate bearer of arms, had to be prepared to die for his or her country, the international soldier/police officer risks his or her life for humanity" (Kaldor 2006, 139). Kaldor's analysis of new war is explicitly framed within a larger structure of liberal governance and values, especially in her promotion of cosmopolitanism. It is notably global, and we might see the global drone strikes – able to police and surgically strike – as part of her vision. Human rights, especially of the individual, and participatory, democratic politics play a central role in both her understanding of the violence of new wars and possible solutions. Less explicitly however, within Kaldor's writings there also exists a thread of liberal developmentalism tied to conflict and violence. This reinforces a conceptual spatial distinction of illiberal violence as something that happens "out there" and by "others." She provides a hint of this when she writes in the more recent edition of her book, "It is only if we are able to reverse the current atmosphere and reinstate a mood of hope and reason that we can assist those people, mainly in conflict zones, who currently lead intolerable lives" (Kaldor 2006, xi). This spatial distinction around zones of conflict, tied to development and humanitarian intervention, will be examined more critically later in this section, particularly in the context of Uday Singh Mehta's analysis of nineteenth century liberalism's encounter with the 'unknown' in India.

In *The New Western Way of War*, Martin Shaw provides a largely different framework from Kaldor to understand recent changes in modern warfare, one focused on risk. Shaw describes the new western way of war as "risk-transfer war," which seeks to minimize domestic political and electoral risks by minimizing military casualties. In turn, this effort at decreasing military casualties has the effect of transferring the violent

risks of war to civilians elsewhere in addition to enemy combatants (M. Shaw 2005, 1). For Shaw, the development of risk-transfer war was a response to the "degenerate" nature of the Vietnam War as well as the World Wars (M. Shaw 2005, 5), which saw a large number of civilian lives lost. More importantly for Shaw's analysis was the significant political backlash, particularly with Vietnam, due to large numbers of Western military casualties. This shift to the new Western way of war, therefore, is marked by the desire to conduct war without risk, thereby relegitimating war in the Western public's eyes (M. Shaw 2005, 7). We saw how the question of risk – albeit more a political risk –was salient with the push for drone alternatives to the U-2 spy plane.

What Shaw calls risk-transfer war is labeled humanitarian war by others – which is where we see some of these contradictions in Western violence begin to crystallize. For example, Christopher Coker presents a similar argument to Shaw's in *Humane Warfare*, focusing on the changing justifications for going to war. He makes it clear that legitimate war must be tied to humanitarian ideas as he writes, "Humanitarianism, it would seem, is not just an objective. Western societies can now *only* fight wars which minimise human suffering, that of their enemies' as well as their own" (Coker 2001, 2, emphasis added). The difference is Shaw's emphasis on military casualties as the primary concern of Western governments because of the key factor of public support. This creates a differential field of risk, also evident in the global drone wars. As Shaw explains, "…Western warfare, in controlling life-risks for the military, not only defines but also *generates* new life-risks, which are only weakly managed, for civilians in war zones. Looking at global society as a risk society, it is difficult not to be impressed chiefly by gross inequalities of life-risks, and it is sobering to recognize these as artefacts

[sic] of power" (M. Shaw 2005, 97). Shaw sees risk-transfer as a way of war embedded in a larger shift in the mode of Western warfare, which he calls the "global surveillance" mode of war. Here war has become subordinate to economic, social, and political concerns, creating more intimate links between war and these other spheres. For example, Shaw explains the often referenced "democratic peace thesis" not by liberal states' lack of desire to go to go to war with one another, but because their military institutions are so tightly interwoven, especially due to economic interdependence (M. Shaw 2005, 50).

Mark Duffield unpacks this link between socio-economic spheres and war in more detail in his book *Global Governance and the New Wars*. What Duffield calls new war is the merging of war and security into the discourse of development, due to the creation of a liberal system of global governance tied to economic and social development (Duffield 2001, 2). According to Duffield, the new wars –the merging of war and development—are characterized primarily by two shifts in the role of the nation-state and security. The first is a changing understanding of the state due to the "deepening," rather than expanding, nature of contemporary capitalist structures, where the state's relation to capital is less tied to territorial expansion (for example, in need of material or labor resources) (Duffield 2001, 3). Instead, because of the globalized nature of capitalism, state relations have become more networked, transgressing territorial borders. At the same time, and related to this development, the security threat to the state

has shifted to areas of underdevelopment seen as dangerous.[56] Duffield identifies this connection between security and development, where aid is now securitized, in the Kosovo War, evidenced by NATO's engagement in the war as the result of fighting for "values," not territory (Duffield 2001, 44). The war on terror's commitment to "freedom" and "democracy" would also fit his analysis. Both humanitarianism and development become militarized (and vice versa), giving a different perspective to Kaldor's understanding of Kosovo and her call for cosmopolitan law enforcement. As Duffield writes, "In adjusting to the new wars, perhaps the issue is not simply one of deepening civil-military coordination but, in effect, of the military becoming more like an aid agency in its manner of organization and deployment" (Duffield 2001, 61).

What the new wars literature begins to point to, intentionally or not, is the presence of humanitarianism and an idea or appeal to a common humanity at the center of Western violence and intervention. The Kosovo air campaign is a prime example of this – an effort justified to help people in the region. But the scholarship reviewed above also points to other facets of this humanitarianism: its aversion to risk, concern with public opinion, and links to projects of development. Didier Fassin argues that this humanitarianism "has become a potent force of our world" (Fassin 2012, xi). Seeing a logic of humanitarian reason as currently shaping politics and the actions of Western governments, he identifies this humanitarianism as the introduction of moral sentiments into politics. Yet what is so insightful about Fassin's analysis –unlike much of the new wars literature— is that he sees humanitarian reason as fundamentally paradoxical and

[56] We see this line of thinking in a recent debate in Britain over whether or not UK drones that have been deployed in Afghanistan should now be used in Africa to monitor terrorist and other threats (Bowcott 2014).

asymmetrical. On the one hand humanitarian reason requires the deployment of a politics of inequality (those in need of help are poorer or less capable) and on the other a deployment of a politics of solidarity (to help, one must identify with those in need). As he writes, "This tension between inequality and solidarity, between a relation of domination and a relation of assistance, is constitutive of all humanitarian government" (Fassin 2012, 3). Contemporary humanitarian reason, therefore, not only names a change in the importance of moral sentiments and values for justifying intervention into already precarious lives, but also actively produces these lives and their precarity (Fassin 2012, 4). Fassin's argument helps illuminate what really is at stake in this shift to humanitarian or liberal intervention, also to see the drone strike – or living under the drone more generally— as one of the ways that precarity is reproduced.

Eyal Weizman expands on this line of thinking in *The Least of all Possible Evils*, which examines the connection of humanitarianism to military violence through the case of air strikes by the IDF in Gaza. He shows how the air strikes, and other measures such as turning on and off the power grid, are used to keep the population of Gaza at a level where life is sustained, but just barely. Further, he sees a dangerous moderation of violence with the increasing emphasis on collateral damage and the rules of engagement under international law, like proportionality (which requires that the use of force be not excessive to what is needed).[57] Like Fassin, Weizman finds a contradictory and productive nature in these efforts of limiting the violence of war and occupation. As he concisely states, "the moderation of violence is part of the very logic of violence"

[57] Weizman cites, for example, the recent Iraq war where the "magic number" of civilian casualties for air strikes was 30, and that above that number authorization was needed from President Bush or Defense Secretary Rumsfeld (Weizman 2011, 132).

(Weizman 2011, 3). International law and the laws of war are important to Weizman's analysis, as tools –what he calls "lawfare"— through which violence is produced.[58] For example, under the rule of proportionality *some* civilian casualties are acceptable, but as we have seen in the Stanford-NYU and Human Rights Watch studies these guidelines do not limit all violence and often they are interpreted loosely. As Weizman warns, "less brutal measures are also those that may be more easily naturalized, accepted and tolerated – and hence more frequently used, with the result that a greater evil may be reached cumulatively" (Weizman 2011, 10).

Given these contradictions of humanitarianism underpinning recent shifts in warfare, Weizman and Fassin's work provokes a step back to inquire after the broader history of violence that the drone strike is part of. Here I would like to extend Weizman's formulation to argue that to understand the violence produced by and through the drone, we must see that the moderation of violence is a part of the very logic of violence, which is a part of the very logic of liberalism. This analysis therefore places the drone within a much longer historical context of liberal governance, where this mode of governance has at its foundation a constitutive violence.

Two of the major practices where this constitutive violence is manifest clearly are slavery and colonialism, and these of course are interconnected. Both slavery and colonial expansion demand the question Domenico Losurdo (2011, 27) asks: how can Western countries like the United States and the United Kingdom be called liberal when they have these brutal and paradoxical histories? In his "counter-history" of liberalism, Losurdo argues that slavery is not only a paradoxical feature of liberal countries, but that

[58] I examine this argument (and others) of lawfare further in the next chapter.

violence and domination is part of a foundational "twin-birth" of liberalism and that because of this, the "free" liberal community is built on an inclusion that excludes (Losurdo 2011, 37).[59] Uday Singh Mehta trains a similar critical lens on colonial and development projects in the age of British empire. He argues that the predominate approach of British colonists in India in the nineteenth century—one that viewed India as backwards, apolitical, and in need of (often violent) reform—is not an aberration or anomaly to liberal thought, but rather is intimately linked with liberalism's conception of individual freedom. As Mehta describes, liberal political thought shifted in the nineteenth century from an emphasis on the freedom and equality of the individual at birth to a cultivated freedom, one produced out of a proper education and upbringing. This effectively brought into liberal thought a teleological understanding of progress in which Western liberalism is both the starting point and the goal. We can see here a foreshadowing within the liberal colonial project of the basis of the later link between development, humanitarianism, and security in the twentieth century. Mehta centers his analysis on liberalism's encounter with the unfamiliar and its epistemological commitment to make the unfamiliar knowable, and thus familiar (Mehta 1999, 27). To put it another way, the British engagement in India is an expression of the liberal

[59] Losurdo finds that the three major revolutions in the history of liberalism, including the American Revolution, occurred when slavery experienced its maximum development, not in spite of it (Losurdo 2011, 35). He writes, "The West is at once the culture which most rigorously and effectively theorizes and practices the limitation of power, and which with the greatest success and on the largest scale, is engaged in the development of chattel slavery -- an institution that involves the full development of the master's power over slaves reduced to chattels and 'nature.' And this paradox is exhibited in especially striking fashion precisely in the countries with the most established liberal tradition" (Losurdo 2011, 310).

epistemological framework, which understands the unfamiliar only through the categories of the familiar. While Mehta finds a potential challenger to this in the writings of Edmund Burke, it is clear that an imperialist project is present in liberalism not just in practice throughout its history, but at its very epistemological core. As he writes, the urge of imperialism is at the heart of liberalism (Mehta 1999, 20).[60]

Similarly, Margaret Canovan argues that liberalism is founded on a set of often-contradictory principles that are imagined to follow from one another. These are on the one hand a commitment to open discussion, especially in the form of democracy, and on the other a commitment to a defined set of political goals including freedom and human rights (Canovan 1990, 9). Liberal thought brings these two together through its particular understanding of the nature of human beings. Canovan identifies this as a myth at the heart of liberalism. The assumption that humans are born equal and free, whether in the context of the state of nature or the declaration of universal human rights, sets liberalism up with a nearly impossible goal, and for Canovan it is uncovering this myth that allows for a possible liberal project:

> Liberalism is not a matter of clearing away a few accidental obstacles and allowing humanity to unfold its natural essence. It is more like making a garden in a jungle that is continually encroaching: fighting for human rights because most human beings do not possess them; establishing 'natural justice' in legal processes because there is nothing natural about it; insisting on toleration for minorities because it flies in the face of instinctive loyalties; working for peace because men are naturally fitted for war. (Canovan 1990, 16)

It is clear here, even if unstated, that the "myth" of liberalism creates a division between 'natural humanity' and that which is a threat to it. In other words, at its foundation

[60] This epistemological violence is explored further under the register of technological rationality in Chapter 5.

liberalism operates in tension with an enemy, an other, or a transgressive element. In a sense, what Canovan identifies, like Mehta, is a particular teleology of liberal thought. Its myth is that it begins from a point of equal and free humanity, but this myth only serves to enable a project that must reshape the world (often violently) in order to reach these goals.

What I am suggesting in turning to Losurdo, Mehta, and Canovan is not only that there are some parallels to draw between slavery and colonialism in the history of liberalism and the drone wars and practice of lethal surveillance of today, but further that all three of these writers point to an ontological violence at the basis of liberal thought and governance. This violence is characterized by a continual division on life (the life of the colonizers vs the colonized, the slave vs the master, the terrorist vs the civilian and so on), and that it is this division – not the social contract or the rights of man – that is a mainstay of liberal order.[61] This insight serves not only to call attention to the lives "over there," often rendered invisible, that are taken or harmed by drone strikes as the Stanford-NYU and Human Rights Watch reports encourage, but also to look at the ways that these strikes are themselves reflective *and* productive of contemporary liberal governmental

[61] This analysis is influenced heavily by Michel Foucault's writings on power and war, particularly in the lectures of *Society Must Be Defended*. The division on life is fundamentally one of race and as he writes on biopolitics, "It is indeed the emergence of this biopower that inscribes [racism] in the mechanisms of the State. It is at this moment that racism is inscribed as the basic mechanism of power, as it is exercised in modern States…It is, in short, a way of establishing a biological-type caesure within a population that appears to be a biological domain. This will allow power to treat that population as a mixture of races, or to be more accurate, to treat the species, to subdivide the species it controls, into the subspecies known, precisely as races" (Foucault 2003, 254-255). I return to this analysis of Foucault's more explicitly in the next chapter.

structures and practices. I now examine this aspect of the violence of the practice of lethal surveillance.

Pattern of Life Analysis and the Biopolitical Body

Along with a history of violence conducted by liberal governments, the violence of the drone, and the practice of lethal surveillance more generally, must be examined through the lens of the *targeted* character of drone strikes. Changes in the practices of targeting and how targets are defined by the military are a central component to the development of the drone. This can be seen in the significance of the shift to more dynamic targeting, as exemplified in the Kosovo air war and after 9/11. From the more fixed infrastructure and area targets of the Cold War (including Vietnam),[62] we see first a shift in the temporality of targeting, where the "kill-chain" is sped up and becomes more continuous. In Kosovo, the original target lists were quickly updated after the beginning of the intervention and were continuously modified with new intelligence. Second, as part of the global war on terror after 9/11, targets in Afghanistan, and to a large extent in Iraq as well, took on a more networked character as al Qaeda and the Taliban were viewed as more decentralized organizations. This networked enemy meant that targeting emphasized individuals and other nodes in the network (such as the locations of leaders, bomb makers, and suppliers). The focus on individuals has carried over into today's drone wars, where the Obama administration has developed a global targeted killing program. As Kyle Grayson (2012) notes, this targeting of the individual, often now

[62] There are some notable exceptions to this and important distinctions between targeting practices in North and South Vietnam, suggesting that the shift to dynamic targets might best be understood as more fluid or gradual. See footnote 50.

outside a defined warzone or battlefield, brings these strikes more in line with what has been called targeted or political assassinations. As he argues, the choice of term – "targeted killing" or "assassination"—reflects how these practices of killing are viewed by the military. Today the use of the term targeted killing (instead of assassination) by the military reflects at least three important characteristics of military violence: (1) the focus on the individual, (2) the militaristic nature of the strike, and (3) an unhinging from the space of war or delineated battlefield. Grayson describes this last characteristic as reflective of an ambiguity in drone strikes. As he writes, "By intertexting with medical discourse and potentially circumventing the less savoury performative connotations of assassination, targeted killing implies a level of selectivity, precision and technical mastery in initiating and carrying out the decision to exterminate. Yet, targeted or selective killings involve explicit ambiguity over their legal status…" (Grayson 2012, 26). In this section, I examine in greater detail what these characteristics of targeted killing mean today, and especially how they help to better understand the history of liberal violence discussed earlier.

In "Drone Geographies," Derek Gregory argues that individuation is one of the key aspects of contemporary drone operations. Describing the target space as transforming into the "body-space," he shows how the focus on the individual is "dynamic targeting with a vengeance," essentially enabling war to go where the individual goes (Gregory 2014, 14). Furthermore, as Gregory reminds us, these individuals are produced through the process of targeting. Pattern of life analysis or signature strikes most easily demonstrate this production, where targets are identified not because of who they are (often their identities are unknown) but rather by what they are

doing (Gregory 2014, 13). This production of the individual-as-target, moreover, is multifaceted, drawn from multiple intelligence sources, creating more of a composite target or composite individual (Adey, Whitehead, and Williams 2012, 174).

Yet, what is most interesting about this shift to the individual is less the focus on the body, but rather the absence of the body within the military's targeting process. In other words, increasingly there is a stark disjuncture between the body killed from the strike and the lack of body leading up to it. This absence of the body from the military's perspective is best seen in the targeting practices that rely on SIGINT (signals intelligence) provided from the National Security Agency, among others.[63] Here the decision to conduct a drone strike is based on metadata coming from cell phones that are thought to belong, or once belonged, to a potential terrorist or target. Using primarily geolocation data, the military essentially follows the phone, not the person. As one drone operator described, "Once the bomb lands or a night raid happens, you know that phone is there…But we don't know who's behind it, who's holding it. It's assumed that the phone belongs to a human being who is nefarious and considered an 'unlawful enemy combatant.' This is where it gets very shady" (Quoted in Scahill and Greenwald 2014). The wrong person can be easily killed instead; knowing that the military is tracking cell phones, potential targets have adapted by often switching cell phones and SIM cards. Furthermore, with massive data collection and analysis programs such as the CIA's SHENANIGANS, where wireless, computer, phone, and other data in a particular area is

[63] This current emphasis on SIGINT over human or on-the-ground intelligence is part of a growing trend in intelligence analysis, dating back at least to the use of electronic data collection in the Cold War, one that drones reflect and contribute to.

sucked into pods mounted on aircraft overhead, individuals are viewed more and more through the data they produce leading to what has been called death by metadata.[64]

The kill chain has not only been sped up, as seen with the incorporation of drones into targeting practices in the Kosovo air war, but also has taken on a new object. This object is a complex –or perhaps the better term is compound- individual. It is at once the mobile individual as a human body, whether this body is known to the military by its identity or by what it does (or appears to do – for example, digging by the side of the road). But increasingly this individual as a body is secondary to data. As Jeremy Packer and Joshua Reeves (2013) argue, changes in enemy detection and recognition are embedded in broader logics of media-specific modes of observing and knowing. Focusing on epistemological shifts, and the technologies and practices behind them, Packer and Reeves tie this secondary process of individuation through data to the dominance of algorithmic thinking in the military. They write, "The ultimate logic of such an epistemology [of algorithms] would treat amalgamations of data (whether associated with a specific human, a human machine assemblage, or multiple such assemblages) across the planet on a set-by-set, moment-to-moment basis to determine whether the threshold dividing friend from enemy has been crossed. It is not a question of locating ontologically given enemies, but rather producing enemies according to algorithmic determination" (Packer and Reeves 2013 315).

[64] One of Scahill and Greenwald's sources describes this shift from people to data well: "People get hung up that there's a targeted list of people…It's really like we're targeting a cell phone. We're not going after people—we're going after their phones, in the hopes that the person on the other end of that missile is the bad guy" (Scahill and Greenwald 2014).

I want to suggest that a biopolitical logic is also at work in these practices of targeted killing, of which algorithmic thinking has become a part. Turning to biopolitical analyses helps us to understand not only the individuation of drone strikes, but also how the body is reimagined or reconfigured in and through these strikes. These strikes help us illuminate recent changes in the biopolitical character of liberal governance.

Biopolitics turns our attention to the way that power acts on and through the body; following Foucault, biopolitics marks a shift in the structure of state power from a traditional model of sovereignty to a more differential field of power relations focused on the population. One of the ways this shift is visible is through the technologies used by the state to render the individual body knowable and controllable, as Foucault describes in a wide variety of techniques from the Panopticon to the schoolhouse to the clinic. Often seen as a way of understanding the production of political subjects and power relations within the state, how might biopolitics apply to war and to practices of targeted killing outside the state's territory?

One way of answering this question is to turn to Achille Mbembe's concept of necropolitics. Writing in 2003, Mbembe is concerned with trying to develop a concept of sovereignty based not on more abstract notions of norms, reason or the preformed rational modern subject, but rather on more material relations of life and death that take into account the very real bodies that sovereign power is enacted through. As he writes, "My concern is those figures of sovereignty whose central project is not the struggle for autonomy but *the generalized instrumentalization of human existence and the material destruction of human bodies and populations*" (Mbembe 2003, 14). Seeing analyses of biopower as not extending adequately to contemporary practices of war and killing,

Mbembe focuses on how the production of subjectivity operates in and through confrontations with death. Using, among others, the example of Palestine, Mbembe argues that power is in part produced and maintained through structures of terror, what he calls necropower, and that necropower is characterized by territorial fragmentation (seen, for example, with the complex wall and border divisions in Palestine), vertical surveillance, and targeted killing. War, violence, and (post)colonial occupation thus become important sites for understanding the creation and maintenance of power relations. Mbembe describes the contemporary moment as a combination of disciplinary power, biopower, and necropower, but what becomes clear in the last decade, especially with the increasing use of drones, is an even greater intertwinement of these forms of power. I seek to show that drones transfer biopolitical techniques to practices of killing.

Michael Dillon and Julian Reid make an explicit connection between liberal war and liberal governance, arguing that the liberal way of war and the liberal way of rule always have been co-productive of one another. This becomes a helpful framework for thinking through the transfer of techniques between governance and war.[65] In their book, *The Liberal Way of War: Killing to make life live*, Dillon and Reid explain that war has been an important instrument not just for geopolitical strategists—best understood as a realist view of international relations—but also for liberals (Dillon and Reid 2009, 15). As they write:

> However much liberalism abjures war, indeed finds the instrumental use of war, especially, a scandal, war has always been as instrumental to liberal as to geopolitical thinkers. In that very attempt to instrumentalize, indeed universalize,

[65] In *Cities Under Siege*, Stephen Graham (2010) documents the migration of military technologies into urban spaces showing how techniques of war transfer into practices of governance, whereas here I focus on a transfer from governance to war.

> war in pursuit of its own global project of emancipation, the practice of liberal rule itself becomes profoundly shaped by war. However much it may proclaim liberal peace and freedom, its own allied commitment to war subverts the very peace and freedoms it proclaims. (Dillon and Reid 2009, 7)

For Dillon and Reid, the presence of war in the history of liberal governance is neither contradictory, nor is it an unfortunate result of liberal states' interaction with nonliberal states or forces. Rather, drawing heavily on Foucault, they argue that war lies at the heart of the liberal political project. War is central to liberalism in the way that liberalism problematizes its political project and understands what is dangerous or a threat to it. For Dillon and Reid this is clearly demonstrated in what liberalism takes to be its central referent or object: life (Dillon and Reid 2009, 16). The liberal subject is not simply the individual with rights to be protected, but rather the individual human as a part of the human species. Dillon and Reid trace the development of the liberal subject as understood in species terms—the biohuman—to early liberal thought emerging out of an understanding of natural freedom (of a biological nature) (Dillon and Reid 2009, 16). The project of governing in relation to this liberal subject of the biohuman is thus tied to the biological properties of the species, as biohumanity (Dillon and Reid 2009, 17). With life, understood as species, as the central referent of liberal rule, the role of liberal governance is to promote and foster those characteristics of life as species that support life and to wage war on the others that do not (Dillon and Reid 2009, 31). In their view, war in relation to liberal governance is not fought against external forces that threaten the coherence of the liberal political state, but rather, war is fought against fundamentally internal forces (whether these are perceived as internal or external to the state) that

threaten the coherence of humanity as a species.[66] This has the effect of universalizing war because, in the name of biohumanity, liberalism paradoxically, and necessarily, wages war against it (Dillon and Reid 2009, 20). The central referent of liberalism, then, is both a threat and a promise, much like Canovan's myth: the liberal way of rule seeks to promote the human as species, yet certain characteristics of the human as species make it also a threat (Dillon and Reid 2009, 32). The human as species is always emerging and becoming, but at the same time always is becoming-dangerous, a term Dillon and Reid call the "emergency of emergence" (Dillon and Reid 2009, 44). Liberal rule and war have developed in response to controlling and harnessing this transformative potential, whether through economic, political, or military practices.[67] As Dillon and Reid write, with the liberal way of war, "waging war on the human in the name of the biohuman, systematically also now demonizes the human being, from the individual to the collective, as the very locus of the infinite threat posed to the biohuman by the diverse undecidability of the human as such" (Dillon and Reid 2009, 20).

With life as the object and threat of liberalism, Dillon and Reid show how changing conceptions of this life—the biohuman—have shaped different practices of liberal governance and war. For them, the question of the changing nature of war, or

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[66] This, as Dillon and Reid note, is not the same as the friend/enemy distinction described by Schmitt, which relies more on an internal/external conceptual divide. Furthermore, the determination of which biological characteristics pose a threat to biohumanity transform over time in liberal political governance (Dillon and Reid 2009, 43).

[67] Note that Dillon and Reid are not just saying that the liberal way of rule fundamentally produces or results in war. The liberal way of war also shapes the liberal way of rule (i.e. the two are co-productive): "Via its proliferating mechanisms of security, and its continuous military preparedness, as well as through the wars in which it is also currently engaged, the liberal way of rule is a war-making machine whose continuous processes of war preparation prior to the conduct of any hostilities profoundly, and pervasively, shape the liberal way of life" (Dillon and Reid 2009, 20).

'new war,' can only be explained by the changing nature of the biopolitical object of liberalism. This has changed especially as the understanding of species and biological properties have changed with developments in the biosciences (Dillon and Reid 2009, 51). Dillon and Reid describe the current liberal conception of biohumanity as one that equates life with information. This goes beyond simply that we currently exist in an age of information and increasingly interconnected technological communication, but rather life itself is understood as information, or code, which is a shift away from a more ecological understanding as life in terms of biological function (Dillon and Reid 2009, 21). Biological systems are important not for the functions they fulfill, but for the information they transmit. With this redefinition of life, the division between the living and nonliving, or human and nonhuman, also becomes blurred and tied to information (Dillon and Reid 2009, 65). What is most important for Dillon and Reid is that with the biohuman understood in terms of information and communication, a radical contingency becomes central to how biohumanity is conceived. Life as information is subject to immanent, complex, and uncertain laws, as especially holds true with the use of metadata in contemporary drone strikes.

With radically contingent life as the central referent for the contemporary liberal way of rule, Dillon and Reid identify a further intensifying relationship between liberal governance and liberal war. Liberal governance rules on a permanent emergency of emergence, and seeks to foster in populations the ability for self-governance and adaptation (Dillon and Reid 2009, 102). This is a global project, extending beyond the state, one that is intimately tied to global economic structures: "The human is both the enemy against which liberal regimes are today seeking to secure themselves, as well as a

resource from which they are attempting to extract value in pursuit of their security" (Dillon and Reid 2009, 133). That which hinders the ability for biohumanity to thrive becomes the target of liberal war. With the goal of controlling contingency, the liberal way of rule and war produces "a strategic calculus of necessary killing" (killing to make life live), but because this violence is directed at an internal enemy (the contingent properties of the biohuman) the killing of the liberal way of war also has no defined limit (Dillon and Reid 2009, 88, 107). Dillon and Reid demonstrate this through the way the battlespace has changed in contemporary warfare, along with the types of weapons used against the "enemies" of biohumanity. Intelligent weapons and "network-centric warfare" do not just exhibit the informationalization of weapons systems, but more fundamentally that information itself is weaponized in a shift from military strategy to 'biostrategy' (Dillon and Reid 2009, 111). We might extend their argument to the global proliferation of drone strikes and the increasing use of drones (although as of yet unarmed) within the United States.

Within the framework of life as information, Dillon and Reid seek both to explain the changing nature of contemporary war and place war at the center of the liberal political project throughout its development. War and liberalism are intimately linked because of liberalism's central referent of life and the biopolitical turn to life as information intensifies and changes the character of this relationship. What emerges here is a way to think about biopolitical practices and practices of killing in relation to each other, a relation that is important to understanding the drone strike. Not only do we see an important narrative of humanitarian war and intervention emerge, where the "surgical strike" and invisibility of civilian casualties fits within a mode of liberal governance

focused on a certain global/species view of humanity, but also we can start to grasp the significance of "death by metadata" when we place it within a biopolitical shift in understanding life as information. Pattern of life analysis becomes another way through which violence is produced by the drone strike, and rendered acceptable or justified by a liberal government.

Conclusion

The violence produced through the drone – the *lethal* aspect of lethal surveillance – reflects two more general trends in or characteristics of Western violence. The first is the inherent contradictory nature of liberal governance, which is predicated on the continuous reproduction of a violent division between the inside/outside of liberal governance (increasingly not delimited by the territorial boundaries of the state). Those 'outside' are viewed as a threat and become the receivers of a violence that would be considered unacceptable for those 'inside.' As we see clearly in the example of the drone strike, liberal governance is produced through this violence at the same time that it tries to render it invisible. These divisions have been produced in many ways, and we see today that the drone is one of the ways that violence is mediated: civilian casualties are rewritten as enemy deaths and the distance of the drone limits risks to military lives, leaving the drone program largely without serious critique. Seen in this context of liberal violence, lethal surveillance becomes a means through which liberal governance reproduces itself today. Put another way, the drone is not an outlier or anomaly—for example, the Obama administration's use of drones as an exception (legally, politically,

morally) to governmental power. Rather, to study the drone is to study how liberalism operates today.

Second, the violence of the drone points to the biopolitical nature of lethal surveillance. Particularly with pattern of life analysis, signatory strikes, and the use of metadata in the kill chain, we see the increasing deployment of biopolitical techniques in drone wars. This results in a historical shift from the target as area or infrastructure to the target as mobile individual. Furthermore, biopolitical modes of governance are changing, as the individual-as-body is increasingly replaced by individual-as-information.

Taken together, this analysis of the practice of lethal surveillance reveals that this contemporary production of the inside/outside division of liberalism is realized in part through the targeting of individuals – placing the drone strike squarely within a project of liberal governance. This bleed of biopolitical techniques into the arena of war, into practices of killing, gives liberal governance a new form, where the power of the state is now wielded across a global population of individuals – perhaps creating a new field of 'inside/outside' to this structure of power.

Yet, something does not quite sit right with this analysis of biopolitics and war. Rather, something exceeds and is not quite captured by it: the act of killing itself. Mbembe's question lingers: "Is the notion of biopower sufficient to account for the contemporary ways in which the political, under the guise of war, of resistance, or of the fight against terror, makes the murder of the enemy its primary and absolute objective?" (Mbembe 2003, 12). As the second section of this chapter has shown, we see clearly how the *means* of killing through the drone strike – especially with the emergence of lethal surveillance – deploys biopolitical techniques. This helps make visible links with liberal

governance. Most analyses of biopower, however, focus on practices aimed at sustaining life (even barely), with death in these cases largely an important, but indirect result. What is especially unsettling or discomforting about the drone strike is its direct action on death. This raises anew questions about sovereign power, especially in this contemporary moment where the biopolitical frame is so dominant. How does this direct action through lethal surveillance, taking life, square with analyses of power today? How is it justified within the broader project of liberal governance and war? It is to this question of sovereign power that I turn to now through an examination of the spatiality of state power.

Chapter 4

Ephemeral Sovereignty and the Spatiality of Contemporary Drone Wars

"The message is that we will shrink the world to find you, we will shrink the world to bring you to justice…"

-FBI Director James Comey (Hudson 2014)

The previous chapter examined the history and character of violence that lethal surveillance both emerges out of and is productive of. As an example of liberal violence, the contemporary drone strike reveals an ontological violence, and thus significant contradictions, at the heart of liberal governance. In a sense, the drone is one of a number of examples we could look at to locate this contradictory violence at work in the deployment of biopolitical techniques of security, whether we turn to the border, the camp, the courtroom, the street, etc. Yet the drone does not just control or ignore bodies, it destroys them. It is now a weapon. While there is much to be gained by looking at the drone through the lens of biopolitics – for example, in making sense of how individuals are targeted through pattern of life analysis— an aspect of power important to the practice of lethal surveillance is not captured by this biopolitical frame.

This is the power – to foreshadow where this chapter is heading – to *take life*, the right to kill. This is sovereign power, following Foucault, characterized by the "right to take life or let live" and contrasted to disciplinary power (of which biopolitics is a part) that seeks to "foster life or disallow it" (Foucault 1990, 138). Readings of Foucault often

narrate the history of state power as disciplinary power replacing sovereign power,[68] which helps us to explain a number of significant shifts over time from the increasingly intertwined relation of capital and the state to the emergence of new sites of power like the clinic or Guantanamo Bay. Has sovereign power remerged with lethal surveillance? Do the drone strikes authorized by President Obama signal a regression to a form of power manifest through a figure of the sovereign? Wielding the right to kill perhaps points to a changing landscape of power.

In this chapter, I examine these questions through two broad and interconnected themes. The first is that of space, and specifically the spatiality of today's drone wars. Space is an important figure in today's discourse surrounding the drone (and, as we have seen, through its history). The drone allows for shrinking space or distance and overcoming territorial limits, enabling targeting at increasingly large distances and extending the spatial reach of the military with limited risk. Further, in part because of these characteristics, the drone has become a weapon that is deployed in territories outside of war zones with little resistance,[69] as we have seen for example with drone strikes in Libya, Somalia, Pakistan, and Yemen. If global drone wars raise questions about the changing space of war, they also engage questions about territory and the projection of force. This ties the theme of space to another taken up in this chapter, of justification or authority. One of the most controversial aspects of contemporary drone

[68] Foucault himself follows this teleology, at least at first glance. As will become clear, however, this shift to disciplinary power does not mean that sovereign power goes away completely, and they in fact exist in tension with each other.

[69] At least in the eyes of the US government and mainstream Western media. The large pushback against drones in Pakistan has received very limited media attention in the United States.

strikes is where they are being used, and when used outside of traditional battlefields and against individuals not engaged in immediate hostilities, whether they are legal or not. In other words, the drone today and the emergence of lethal surveillance raise questions about the use of power and the projection of force – what kind, where, and how is it justified.

In the first section of this chapter, I engage with the question of authority through a close reading of the only two publicly available documents that outline the US government's justification for drone strikes outside war zones. In these documents, how the space of war (or more broadly the space of threat) is characterized becomes important for the legality of a strike. I then turn to recent efforts by critical geographers to make sense of the changing spatiality of war, with a particular focus on the role of law in shaping and justifying warfare. Law is a central problematic for both the government and this scholarship seeking to understand drone strikes and their global expansion (albeit in very different ways). I show that this leads us to more fundamental inquiries into the extent and nature of state power – returning to the question of sovereign power.

In the second section, I begin to unpack this and turn more explicitly to the theme of space to examine the links between state power, sovereignty, and space. Generally, this relationship has been theorized around the idea of physical territory, with sovereign power closely tied to the territory of the state. Seeking to understand how the spatiality of state power might be thought differently, I draw upon a range of thinkers who have proposed non-territorial (in the physical sense) spatialities of state power. From this examination of territory, also returning to Foucault's concept of sovereign power, I argue

that contemporary drone strikes reflect less a dissolution of territory and sovereignty than a reconfiguration of their meanings.

Viewed in this light, retaining a conception of sovereign power helps us understand the decision on life embedded in a drone strike. Yet contemporary sovereign power necessarily looks different from traditional conceptions of sovereignty: it is both unhinged from traditional conceptions of territory and intertwined in new ways with disciplinary power. As I show in the final section of the chapter, the spatiality of lethal surveillance is best viewed topologically, drawing on a more networked and dynamic understanding of territory. From this conception of territory emerges a new landscape for the projection of power that we see today, which I will call ephemeral sovereignty. I conclude by outlining the significance of ephemeral sovereignty to lethal surveillance and the continued projection of force and maintenance of contemporary state power.

Shrinking the World: Lawfare and the Justification of Global Killing

Since 9/11, excluding government officials' speeches and congressional testimonies, only two public government documents detail the justification of the use of drone strikes outside of Iraq and Afghanistan, extending state power and the projection of force outside of delineated battlespaces. A 2010 Memorandum for the Attorney General from the Department of Justice Office of Legal Counsel (from now on referenced as the "Memorandum") and a 2011 draft of a Department of Justice White Paper (from now on referred to as the "White Paper") each outline a legal argument in support of drone strikes, with particular focus on the lawfulness of targeting American citizens abroad. The 2010 Memorandum affirms the legality of a drone strike against Anwar al-Awlaki,

an American citizen in Yemen, by assessing whether or not the strike would violate Federal criminal laws or the Constitution. The conclusion of the document –that these strikes are legal –is supported by three main arguments, which the Memorandum moves through in order, yet also keeps fairly distinct from one another. This has the effect of making it difficult for the reader to distinguish exactly what the legality of the strikes hinges on— compounded by redacted portions of the text.[70]

The first consideration is whether, in the case of targeting al-Awlaki, the actions of the government would fall under a public authority justification for the criminal codes it would otherwise violate.[71] In other words, if the targeting of Awlaki fell under the public authority justification, it would not be considered an "unlawful killing" or murder. The Memorandum argues that this justification would apply for either DoD or CIA targeted killing because it would constitute a "lawful conduct of war" (Office of Legal Counsel 2010, 20). To make this argument, which is the most detailed section in the Memorandum, the authors argue that al-Awlaki as an individual falls within the scope of the 2001 Authorization for Use of Military Force (AUMF).[72] The authors argue, "…the

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[70] Legal scholars have commented on the circular logic and thin reasoning of the 2010 Memorandum. As Peter Van Buren (2014) noted, "Here's the terrifying part: ostensibly the result of some of the best legal thinking available to the White House on a issue that couldn't be more basic to the American system, it wouldn't get a first-year law student a C-. The arguments are almost bizarrely puerile in a document that is a visibly shaky attempt to provide cover for a predetermined premise. No wonder the administration fought its release for so long. Its officials were, undoubtedly, ashamed of it."

[71] The two codes considered are 18 U.S Code S1119 ("Foreign murder of United States nationals") and 18 U.S. Code S956 ("Conspiracy to kill, kidnap, maim, or injure persons or damage property in a foreign country").

[72] The 2001 AUMF, enacted on September 18, 2001, reads: "That the President is authorized to use all necessary and appropriate force against those nations, organizations, or persons he determines planned, authorized, committed, or aided the terrorist attacks that occurred on September 11, 2001, or harbored such organizations or persons, in order

AUMF itself does not set forth an express geographic limitation…" (Office of Legal Counsel 2010, 24). What is important, therefore, is the status of those involved in the conflict, not the location of the conflict, which could extend globally and in a sense moves with the individuals involved. Following this, and in what begins to feel like circular reasoning, the Memorandum concludes that because the military would follow the rules of International Humanitarian Law in its targeting procedures, these actions would be under the conduct of war and thus fall under the public authority justification.[73]

The second and third major justifications put forward in the Memorandum rely on evidence that al-Awlaki is actively taking part (or planning to take part) in hostile actions directed at the United States. It first determines that the United States would not fall subject to the War Crimes Act because of al-Awlaki's legitimate status as a target. Second, the Memorandum demonstrates that there are no Constitutional limitations placed on killing Awlaki as a US citizen because the threat he poses is greater than the violation of his Constitutional rights. The argument that the US government would prefer to capture him, but deems it infeasible, is used to bolster this claim. Any evidence presented that the United States had tried to capture him has been redacted.

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to prevent any future acts of international terrorism against the United States by such nations, organizations or person" (S.J. Res. 23 2001).

[73] The section on the CIA's inclusion under the public authority justification is more redacted, but draws on a similar logic: that targeting would be a part of the AUMF tied to the conflict that the United States is currently involved in. It should also be noted that the Memorandum's evocation of International Humanitarian Law is essentially an empty argument. Under International Humanitarian Law, a "non-international conflict" (which, as I discuss further below, the Memorandum classifies the AUMF conflict to be) falls *only* under the Geneva Convention Common Article Three, which is extremely short and has been argued to be very open to interpretation (Rivkin, Casey, and Stimson 2009).

Focused also on the targeted killing of a US citizen more generally, and not directly referencing al-Awlaki, the 2011 Department of Justice White Paper parallels many of the arguments and conclusions outlined in the 2010 Memorandum, with sections focused on Constitutional limitations, the public authority justification, and war crimes. The 2011 White Paper, however, adds a more specific legal framework for when lethal force is justified. It states that:

> …where the following three conditions are met, a U.S. operation using lethal force in a foreign country against a U.S. citizen who is a senior operational leader of al-Qa'ida or an associated force would be lawful: (1) an informed, high-level official of the U.S. government has determined that the targeted individual poses an imminent threat of violent attack against the United States; (2) capture is infeasible, and the United States continues to monitor whether capture becomes feasible; and (3) the operation would be conducted in a manner consistent with applicable law of war principles (Department of Justice 2011, 1).

These three stipulations represent the most concise guidelines across available government documents for the authority to strike, and they center on an official within the US government making a determination of a threat. Once this determination is made, and the individual target in question is associated with a terrorist group,[74] killing this individual is lawful as long as capturing him/her is seen as difficult and the "laws of war" are followed.[75]

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[74] The wording of this criteria of association is vague and thus left open to wide interpretation. The US government has claimed to primarily focus on senior leaders, although this has clearly not been the case. The targets of drone strikes have been primarily either low-level operators or those engaging in activities deemed connected to or reflective of terrorist operations (Landay 2013; Entous 2010).

[75] The 'laws of war' here likely refers to International Humanitarian Law (called Laws of War or Laws of Armed Conflict by the United States), which consists of the 1949 four Geneva Conventions and the 1977 Additional Geneva Protocols. Only the four original conventions are universally accepted and ratified. As mentioned in Footnote 72, because this conflict is classified as a "non-international conflict" only Common Article III (under

Focusing on the first stipulation, a central component of the target determination is whether or not the individual poses an *imminent* threat. Much of the justification for this stipulation that follows in the White Paper deals with what constitutes an imminent threat and how norms of sovereignty and territory are taken into consideration. According to its authors, the possibility of an imminent threat authorizes the United States to target an individual under the justification of self-defense (Department of Justice 2011, 1). This targeting practice also does not violate another state's sovereignty, such as Yemen or Pakistan; either the lethal action is undertaken with the consent of that state, *or* that state is unwilling to accept or take action on its own, rendering US action justified by the immediacy of the threat. In other words, imminent threat trumps other states' control of their own territories.[76] In addition to self defense, the White Paper also draws on the AUMF for justification of targeted killing outside of Iraq and Afghanistan, arguing that under the AUMF the United States is involved in a "non-international conflict" with terrorist groups whose nature (as for the AUMF remit) has no geographical limitation. This strangely-named categorization of "non-international conflict" is primarily a legal term found in the laws of armed conflict and refers to a conflict between a state and non-state organized armed groups. This is contrasted to an "international" conflict between two states. The White Paper thus essentially defines the drone strike as an act of war in

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the Additional Protocol II) would apply. Not only is Common Article III short and open to interpretation, the United States has not ratified Additional Protocol II and is only a signatory to it. See https://www.icrc.org/ihl/INTRO/475?OpenDocument. This claim to following the laws of war is therefore mostly a hollow one. Furthermore, it is not clear in the White Paper how and by whom capture is determined infeasible.

[76] It is interesting to note that this discussion of state sovereignty is not addressed (at least in the publicly available version) in the 2010 Memorandum. While it is only briefly discussed in the 2011 White Paper, perhaps its addition reflects growing international concern and conversation over the violation of sovereignty.

two ways, or from two angles. The first is through the AUMF – that these strikes fit within the scope of this authorization of force. The second is through the definition of a non-international conflict – that the nature of the US engagement against terrorist groups puts it within this type of conflict. While this might be redundant (the 2011 White Paper is no more clear and no less circular than the 2010 Memorandum), the authors clearly seek to emphasize the lack of geographical limits and territorial boundaries to the potential scope of drone strikes.

The self-defense and AUMF/non-international conflict justifications come together in a peculiar way around the idea of a threat's imminence. In the White Paper the authors are working with a more general or broader concept of imminence, one that is tied more to a longer temporality of the war on terror (Department of Justice 2011, 7). An imminent threat is not the 'ticking time bomb' scenario, but rather identified as participation in a terrorist group that continually is planning attacks. At first glance, it is unclear why the argument of imminent threat is necessary to the legal framework if, as the 2010 Memorandum (along with parts of the 2011 White Paper) makes clear, attacks against Al-Qaeda members and affiliates are justified globally under the AUMF and the existence of a "non-international conflict." The broad concept of imminence seems unnecessary and redundant, perhaps even adding further confusion. I will return to this at the end of the chapter, noting for now that this emphasis on imminence reflects the importance of temporality to the justification of lethal force. This is not a long-standing or permanent justification, but rather one that is temporary, ephemeral, and must be repeatedly renewed for individual/threat in question.

In both the Memorandum and the White Paper, the drone strike is also justified spatially. The interpretation of the AUMF as having no geographical limits and the definition of "non-international conflict" as not tied to states gives the legal framework of drone strikes global reach. Indeed, the landscape of force projection that emerges out of these documents renders "non-international conflict" sort of a misnomer: better described as a hyper-international or global conflict. In this understanding of conflict, 'traditional' international boundaries do not matter in the way they seem to have in the past (as containers or delimiters of violence, reach of power, etc), at least when it comes to determining where force can or cannot be used. In this legal view, drones strikes outside of Afghanistan and Iraq are not beyond the battlefield; they rather are incorporated in a redefined battlefield. Furthermore, this is a battlefield tied less to territorial space and more to the individual who produces that battlefield through his/her associations or actions. This points to a changing spatiality of war and, as I take up in the second section of this chapter, a changing spatiality of power more generally.

Recent critical scholarship in geography seeks to make sense of this redefined battlefield or battlespace, as it relates to the use of drones.[77] A common theme in this scholarship is the role that law plays in justifying and extending the use of force; it is through law that geographies of war are expanding and changing. This emphasis on law seems to fit with the US government's own choice of the law as the avenue through which to justify strikes, even if the legal argument itself is incomplete or debatable. Here

[77] There are important connections between the scholarship examined here and both the 'new wars' and humanitarian reason literature engaged with in Chapter 3. While this literature from Chapter 3 could easily fit in to a discussion here as well, I focus on these works from geography because of their attention specifically to law and the changing space of war.

I focus on three prominent examples from this literature in geography on law and war that address drone strikes specifically: (1) Derek Gregory's writings on the geography of drones strikes, particularly as it relates to his concept of the 'everywhere war,' (2) Ian Shaw and Majed Akhter's exploration of the relationship between law and technology, and (3) John Morrissey's mobilization of the term 'lawfare.' Taken together, these scholars point to questions of the relationship between space, law, and the projection of state power.

In "Drone Geographies," Derek Gregory argues that drones must be understood within a matrix of military violence that is connected to and producing new visualities and experiences of the battlefield (Gregory 2014, 7). Running through his discussion of various components of this matrix (which includes the development of homeland security, techniques of viewing at a distancing, and the emergence of global threats) is a sense that a new spatiality of war is emerging. War is no longer "over there" or contained within a defined geographical area; rather the 'there' of war is "everywhere." The concept of everywhere war captures not only the endless nature of war today – its persistent temporality – but also its spatial scope, where it is increasingly difficult to delineate spaces of war from spaces of peace (Gregory 2011b, 238-239). In everywhere war, the global spatiality of war is tied to its temporality, which has become increasingly "event-ful." Violence can now happen anywhere, at any time:

> Violence can erupt on a commuter train in Madrid, a house in Gaza City, a poppy field in Helmand or a street in Ciudad Juarez: such is the contrapuntal geography of the everywhere war. It is also to claim that, as cartographic reason falters and military violence is loosed from its frames, the conventional ties between war and geography have come undone… (Gregory 2011b, 239)

Gregory explores three cases of the everywhere war: US drone attacks in Pakistan, the drug war between the United States and Mexico, and cyberwar. These examples show the blurring of the boundaries of war and violence more generally. Furthermore, Gregory finds that the question of legality features prominently in each case. It "runs like a red ribbon throughout the prosecution of late modern war" (Gregory 2011b, 247). The everywhere war spreads largely because war is framed in a neutral and objective legal language.[78] For example, when drone strikes, even those carried out by the CIA, are justified through an urgent and legal argument of "self-defense," little attention is given to civilian casualties or to the strikes' ever-expanding nature. The legal framework thus serves to mask the effects of the violence, at least from a Western point of view. For Gregory, framing this violence within a legal apparatus is key to enabling everywhere war, and involves an intensifying relationship between legality, security, and war. As Gregory concludes:

> The invocation of legality works to marginalize ethics and politics by making available a seemingly neutral, objective language: disagreement and debate then become purely technical issues that involve matters of opinion, certainly, but not values. The appeal to legality – and to the quasi-judicial process it invokes – thus helps to authorize a widespread and widening militarism of our world. (Gregory 2011b, 247)

Yet, Gregory does not go into great detail about how this legal apparatus works. Ian Shaw and Majed Akhter take this up more explicitly in their investigation into the relationship between law and technology in drone strikes in the FATA region of Pakistan. Looking at the increase of drone strikes in FATA as well as the history of the region,

[78] Note that this argument has affinities with Eyal Weizman's (2011) analysis of humanitarian law. See the discussion of Weizman's work in Chapter Three.

Shaw and Akhter argue that FATA is produced as an exceptional place –justifying continuing violence and violation of Pakistan's sovereignty – through the region's legal status and through the object of the drone itself. FATA has been an exception within Pakistani law (here they draw on Agamben's concept of the space of exception) since at least the 1901 Frontier Crimes Regulation, which rendered the area outside of the reach of the law. The Pakistani government has continued this designation in one form or another up to the present. While FATA long has been a frontier region where law is suspended, what is significant about contemporary drone strikes in FATA is how law (as the suspension of law) works along with the object of the drone to create FATA also as an exception for the United States (Shaw and Akhter 2012, 1497). They suggest that the drone itself acts as an exception of sorts, making certain actions inside FATA acceptable. As they argue, the drone is an object that has been fetishized by the military so that its human element or relations are rendered invisible (Shaw and Akhter 2012, 1492). It is, in other words, the drone that can be used in FATA, not other military technologies:

> …the legal-historical geography of the terrain acts in concert with the object itself to produce drone warfare in FATA: it is not simply a matter of drones operating over an undifferentiated enemy landscape. Rather, uneven geo-legalities of war, state, and exception make drone warfare a reality in certain spaces and not others. (Shaw and Akhter 2012, 1500)

In examining the intersections of law, geography, and technology in FATA, Shaw and Akhter provide insight into the specificities of the FATA region, yet it is not clear how their argument holds up when other kinds of incursions into Pakistan are considered, such as the Navy Seal raid that killed Osama bin Laden, or when the lens is turned to other drone strikes around the globe, such as those in Yemen or Somalia. Something more

fundamental seems to be happening in relation to the law and the expanding spaces of killing.

Trying to understand the more general relationship between war and law, some geographers have turned to the concept of "lawfare" –a term describing the waging of war through law or the weaponization of law.[79] John Morrissey argues that the United States has deployed two forms of lawfare in waging the war on terror. The first is through detention and rendition, creating exceptional spaces where individuals lose their legal status. The second is through the protection of military personnel in forward deployed areas, where soldiers and individuals connected to the military are granted legal status in expanding new spaces of war.[80] Both of these ways that law is given or taken away are biopolitical, Morrissey argues, and involve the regulation of life and management of populations (Morrissey 2011, 285). In other words, war expands through lawfare, understood by Morrissey as a technique of biopolitics, implying that biopolitics merges with geopolitics (Morrissey 2011, 290). Echoing the discussion in the previous chapter on liberal violence, Morrissey writes, "The US military's liberal lawfare reveals how the rule of law is simply another securitization tactic in liberalism's 'pursuit of

[79] For one of the key texts on "lawfare," see Kennedy, 2006. For Kennedy, law is more than just the letter of the law, it must also be understood through its practice and discourse. In his words, "Warfare has become a modern legal institution" (Kennedy 2006, 5).

[80] Steve Niva makes a parallel argument to Morrissey, but does not focus on the law. Niva argues that changes in the organizational structure of the military, especially with the creation of the Joint Special Operations Command (JSOC), led to the emergence of a more networked and decentralized battlefield. As he writes, "The extension of the networked shadow warfare to Pakistan, although officially directed by the CIA, marks the crystallization of the networked intelligence and targeting model of warfare originally developed by JSOC into a modular form of war that could be delinked from the conventional military battlespace and extended across new cartographies" (Niva 2013, 196).

security'; a pursuit that paradoxically eliminates fundamental rights and freedoms in the 'name of security'" (Morrissey 2011, 297).

Morrissey thus provides a way to understand how law functions as a fundamental component of contemporary war. His argument might be best placed, perhaps, within ways that biopolitical techniques are being deployed in new ways in warfare, which I explored in Chapter Three. Yet, using his work here helps show what is missing from these critical accounts of the changing geographies of warfare, including Morrissey's. Law is central across this scholarship, albeit in different ways, but there is not a sense of why this happening now and why this should be seen as a new relationship between war and law. The legal apparatus of Gregory's everywhere war and the concept of lawfare only take us so far in understanding the global landscape of drone strikes. They serve to explain how the expansion of these strikes has met very little critical resistance in the West, but do not account for the decision and justification to strike in the first place. How might we understand this decision within the context of the expanding space of war described above? A closer look at this through the broader lens of sovereignty and power reveals not just that war is expanding through lawfare, but that both the meaning of state power and the spatiality of the projection of force might be changing.

Sovereignty and Biopower in the Era of Lethal Surveillance

One of the key thinkers mobilized by critical geographers of contemporary war and security is Giorgio Agamben, in particular his formulation of the state of exception. Often taken up for the concept of bare life and to describe spaces of security such as detention camps, the airport, and the border, his broader engagement with sovereign

power can be a useful starting point in understanding the decisions on life and death presented by the drone strike. Returning to the question of sovereign power raised at the start of this chapter, here I examine Agamben's and Foucault's conceptions of sovereignty in order to begin to understand the global landscape of power emerging with the practice of lethal surveillance. Before tracing out what this looks like, in the last section of the chapter, I unpack how thinking sovereign power is difficult today, both because of the dominance of biopolitics in contemporary analyses of power and because of the strong connection of sovereignty to fixed and static conceptions of territory.

For Agamben, sovereignty is fundamentally paradoxical because of its relationship to law. The sovereign, with the power to suspend the law (the power to create a state of exception), exists both inside and outside of the law (Agamben 1998, 15). The sovereign, in other words, is the limit of the law: an included member who is excluded at the same time. Describing this structure of sovereignty, Agamben writes, "Here what is outside is included not simply by means of an interdiction or an internment, but rather by the juridical order, that is withdraw from the exception and abandon it. The exception does not subtract itself from the rule; rather, the rule, suspending itself, gives rise to the exception and, maintaining itself in relation to the exception, first constitutes itself as rule" (Agamben 1998, 18).

This relation of inclusion-exclusion is important for Agamben to connect law to life. The sovereign is "the originary structure in which law refers to life and includes it in itself by suspending it" (Agamben 1998, 28). This relation takes the form of the ban or exception. Agamben's purpose in developing the concept of the exception is to find a connection between juridico-political (sovereign) and biopolitical modes of power, a link

that Agamben believes Foucault does not fully make (Agamben 1998, 6). This link is "bare life," which is life exposed to death; it is this bare life that is included through exclusion in the state of exception, or the ban. As he writes, "…the inclusion of bare life in the political realm constitutes the original – if concealed – nucleus of sovereign power. *It can even be said that the production of a biopolitical body is the original activity of sovereign power*. In this sense, biopolitics is at least as old as the sovereign exception" (Agamben 1998, 6). Bare life, for Agamben is the originary political element, putting biopolitics at the heart of sovereign power.

What is ultimately at stake for Agamben in this move is the ability to explain not the history of sovereign power, but modern biopolitics, and especially the problem posed by the concentration camp. The camp is the space of the exception; its permanency marks a moment when the exception starts to become the rule (Agamben 1998, 168). As the political becomes more and more biopolitical, it becomes possible for everyone to potentially be bare life. Bare life becomes the central political subject (Agamben 1998, 123). In *State of Exception*, Agamben extends this framework of the camp and bare life to the problem of Guantanamo and indefinite detention after 9/11. With indefinite detention, bare life becomes most vulnerable. Against bare life anything (especially any kind of violence) is possible with the suspension of the law within the law (Agamben 2005, 39). While bare life in this sense is constitutive of sovereign power, Agamben finds the permanence of the structure of exception, and the attempt today to bring it within the juridical order by extending it over all of life, especially troublesome. As he writes:

> What happened and is still happening before our eyes is that the 'juridically empty' space of the state of exception (in which law is in force in the figure—that is, etymologically, in the *fiction*—of its own dissolution, and in which everything that the sovereign deemed de facto necessary could happen) has transgressed its spatiotemporal boundaries and now, overflowing outside them, is starting to coincide with the normal order, in which everything again becomes possible. (Agamben 1998, 38)

For Agamben, this transgression of spatiotemporal boundaries is both territorial – in the sense that the state of exception is brought within the state with measures such as the Patriot Act – and conceptual—bare life becomes re-imagined as a global threat.

We might extend Agamben's post-9/11 analysis of the exception and bare life to the contemporary drone strike, reading the 2010 Memorandum and the 2011 White Paper as the law's decision on life. This is unsatisfactory, however: the life that is the object of the current drone legal framework is not one exposed to death through the suspension of the law. Rather it is a life on which death is directly acted on by the state through the law. The site of the drone strike, in other words, is not juridically empty, raising the question of what other forms of power might also be at work here.[81]

[81] To be clear, I am not arguing that biopolitics plays no role in the drone strike – indeed this is a large part of the argument at the end of Chapter Three. Rather, I am trying here to draw out the elements of sovereign power that are also a part of the drone strike. What I find so unsettling about contemporary drone strikes is that they do not fit cleanly within the realm of biopower. They do not simply "make live and let die" but are rather a stark example of the state's decision to take life and direct action on death. As mentioned in Chapter Three, a closer formulation might be Dillon and Reid's "killing to make life live," yet I would argue that as the drone war continues and expands it becomes increasingly murky how to maintain the "to make life live" part of the formulation. We can also add to these formulations Hardt and Negri's argument at the beginning of *Multitude*, that war is a "regime of biopower" (Hardt and Negri 2004, 13). The question becomes whether we are seeing the reemergence of sovereign power at a time when global, political, and social forces seem to indicate a declining role of the state or whether, as Ian Shaw (2013, 171) has argued, this is the continuation and evolution of biopolitics by other means.

Given that Agamben's formulation of the state of exception is in part the result of his concern with a blind spot in Foucault's writings (Agamben 1998, 5), it is useful to turn to Foucault's theorization of biopower and sovereign power, especially the relationship between the two. In *Society Must Be Defended*, Foucault asks if there is another way to analyze relations of power outside of the juridico-political framework of sovereign power. For Foucault, this juridico-political framework, which links law to questions of power and is the predominate way of understanding power in the West, focuses primarily on questions of sovereignty and the right or legitimacy of the sovereign (Foucault 2003, 26). Foucault dates this juridico-political theory of sovereignty back to the Middle Ages, tracing its evolution through to the eighteenth century. While operating in different forms, it frames the production of sovereignty around the individual subject, whose natural powers are given over to the sovereign, and who is formed as a subject of the state through this power relation (Foucault 2003, 43-44). To put it another way, the power of the individual only becomes political power with this transfer of power through the sovereign. The sovereign, and thus also the law, in turn are legitimated through this transfer of power.

The problem with this theory of sovereignty, however, is that it presupposes the formation of the individual subject. As Foucault writes, " Subject, unitary power, and law: the theory of sovereignty comes into play, I think, among these elements, and it both takes them as given and tries to found them" (Foucault 2003, 44). In contrast to this formulation of sovereignty, Foucault is interested in finding a mode of analysis of sovereign power that de-centers the juridico-political subject – instead he is after the production of the subject. This is important for Foucault, first, because he sees the

juridico-political framework as the dominant way of understanding power, which, in its assumption of the preformed individual, misses relations of repression and force that are fundamental to the production of this individual and sovereign power. Second, he sees the emergence of disciplinary power and biopolitical techniques as an active challenge to this way of understanding state power.

Foucault thus proposes a theory of sovereign power that begins not from the subject but from power relations themselves – what he calls a theory of domination: "A theory of domination, of dominations, rather than a theory of sovereignty: this means that rather than starting with the subject (or even subjects) and elements that exist prior to the relationship and that can be localized, we begin with the power relationship itself, with the actual or effective relationship of domination, and see how that relationship itself determines the elements to which it is applied" (Foucault 2003, 45). By starting with power relations, Foucault seeks to examine how they produce heterogeneous relations and instruments of domination that operate *within and across* the state, in a sense the very foundations of the state and sovereign power.

With this focus on power relations, Foucault turns to war as the lens through which to examine power outside of the juridico-political framework. As he asks in his first lecture in *Society Must Be Defended*, if power fundamentally is a relation of force, should it not be analyzed then in terms of war and conflict (Foucault 2003, 15)?[82]

[82] Clausewitz's relationship of war and politics comes to mind here. Examining the basis of war for power and politics is not simply an inversion of Clausewitz's thesis that war is politics by other means, but rather an investigation into what made Clausewitz's thesis possible. As Foucault writes, "I in fact think—and will attempt to prove—that the principle that politics is a continuation of war by other means was a principle that existed long before Clausewitz, who simply inverted a sort of thesis that had been in circulation

Exploring this question, Foucault identifies a discourse of war from the end of the Middle Ages that offers an alternative history of sovereign power than the one the juridico-political framework provides. This discourse centers on race struggle – conflict and confrontation between races—and challenges the presumed legitimacy of sovereign power by bringing to light the violence and conflict on which the sovereign gained its power (Foucault 2003, 72). This effectively moves war from the outer limits of the state (as something that happens outside of the sovereign's territory) to the very construction of the state. War, in other words, is foundational to sovereign power. The assumed unity of the power of the sovereign, central to the juridico-political framework, is challenged by a binary conception of society in conflict (as a conflict between races), where the state is understood to be formed out of this conflict, with its power continually asserted and contested through permanent war. As Foucault writes, "Sovereignty has a specific function. It does not bind; it enslaves" (Foucault 2003, 69).

War, violence, and repression thus become the basis of a framework with which to rewrite the history of sovereign power. For Foucault, this has two primary effects. First, it makes invasion or conflict a central driver of history as this defines the extent and limits of sovereign power (Foucault 2003, 124). This is understood as not only the threat to the state of external invasion, but also the threat of revolution, which is intimately tied to the history of the state and the production of the sovereign. With the foundations of sovereign power resting on conflict, revolution becomes an ever-present possibility. As Foucault provocatively asks: "Is there anything more to history than the call for

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since the seventeenth and eighteenth centuries and which was both diffuse and specific" (Foucault 2003, 48).

revolution, and the fear of revolution?" (Foucault 2003, 83). The second effect is that it creates a new subject: "the nation." Society becomes no longer homogeneous, but fundamentally in conflict, implying that the defense of society, from both internal and external threats, becomes a primary goal.

With an understanding of war as a historical discourse of the state and productive of sovereign power, Foucault outlines an examination of the changing nature of this discourse and its effects. At the end of the eighteenth century, Foucault observes a notable change in the discourse of war. This is a shift from war understood as a conflict between races to an internalization of violence, or a racism of the state (Foucault 2003, 239). This development follows the emergence of disciplinary power and biopolitics, where relations of power are centered on the body and the human as a living being, or part of a species.[83] The "defense of society," in other words, gets extended beyond the concept of the "nation" in competition to the entire human race. War in turn becomes a biological relation, where enemies are understood as a threat to the population or species (Foucault 2003, 256). As Foucault writes:

> It is indeed the emergence of this biopower that inscribes [racism] in the mechanisms of the State. It is at this moment that racism is inscribed as the basic mechanism of power, as it is exercised in modern States…It is, in short, a way of establishing a biological-type caesura within a population that appears to be a biological domain. This will allow power to treat that population as a mixture of

[83] In *Society Must Be Defended*, Foucault makes a distinction between disciplinary power and biopower where disciplinary power is focused on the body and takes the population of bodies as its object, whereas biopower is focused more on the human as species, a "'biopolitics' of the human race" (Foucault 2003, 242-245). In *The History of Sexuality*, these are distinguished as the "anatomo-politics of the human body" and the "biopolitics of the population" and they join as "biopower" more broadly in the nineteenth century (Foucault 1998, 139-140). The use of the term biopower and biopolitics in this chapter refers to both of these.

> races, or to be more accurate, to treat the species, to subdivide the species it controls, into the subspecies known, precisely as races. (Foucault 2003, 254-255)

Foucault offers a way of understanding the emergence of biopower that is very different than Agamben's narrative. For Agamben, it is the relation to life that is fundamental, which in turn makes biopower a fundamental and originary element of sovereign power. Biopower is the primary mechanism of power. With Foucault, the fundamental mechanism of power is force itself. It is war, violence, conflict, difference. In this view, biopower does not come after sovereign power, replacing it, but sovereign power – the right to kill, the action on death – emerges in new forms today. To put it another way, biopower and sovereign power are related through the relations of repression and war that are common to them both. Thus, at the end of the lectures, when Foucault asks "How can the power of death, the function of death, be exercised in a political system centered upon biopower?", he emphasizes the fine line between the right to "make live and let die" of biopolitics and the state's ability to kill (Foucault 2003, 254). It is the incorporation of racism – the incorporation of the decision on life— within the state that allows these two to exist in tension with each other.

Ultimately what is at stake for Foucault in this analysis are the possibilities for resistance; understanding sovereign and biopower in these ways reveals the difficulty with resisting disciplinary power by turning to a discourse on right. Doing so ignores the relations of repression and domination that are not only present in biopower and sovereign power, but also are produced out of their interaction with each other (Foucault 2003, 39-40). We can see this, for example, in the ineffectiveness of a call to human

rights for resisting state violence,[84] and, as we will see in the final chapter, the difficulty of imagining an effective resistance or critique of lethal surveillance and the global drone deployment. As Foucault writes, "Sovereignty and discipline, legislation, the right of sovereignty and disciplinary mechanics are in fact the two things that constitute – in absolute sense – the general mechanisms of power in our society. Truth to tell, if we are to struggle against disciplines, or against disciplinary power, in our search for nondisciplinary power, we should not be turning to the old right of sovereignty; we should be looking for a new right that is both antidisciplinary and emancipated from the principle of sovereignty" (Foucault 2003, 40).

What remains under-theorized by Foucault is the sovereign power side of the "fine line" between the state's right to kill and its fostering of life – and how these two work together in a complex and evolving assemblage of power. From reading the *Society Must be Defended* lectures, one gets the sense that Foucault sees sovereign power as a present but weakened part of this assemblage, that biopower is the dominant relation of power. The drone strike, however, pushes us to revisit his formulation and to try to understand these intersections of sovereign and biopower; lethal surveillance seems to reflect the collapsing or coming together of the two. Sovereign power gains renewed importance, exercised not just within the physical borders of the state, but projected globally. What does this then look like?

[84] See, for example, Kennedy (2006). This theme of the complicity of human rights activists in the production of war and violence runs through his book. See also Weizman (2011).

Space, Territory, and Ephemeral Sovereignty

One of the difficulties of seeing sovereign power at work today is the strong association between state sovereignty and territory, an association that Foucault saw as of great importance to the formulation of a juridico-political theory of sovereignty (Foucault 2003, 35). Two decades ago, John Agnew observed that the end of the Cold War and an increasingly globalized economy, among other factors, required questioning the assumption that the basis of the state, its limit of power, is clearly demarcated territory (Agnew 1994, 55-56). The target of his intervention was primarily international relations theory, which he felt retained an antiquated concept of territory, for which he identified three geographic assumptions of a territorial conception of the state that needed interrogation. One could argue that the following assumptions have not changed much in mainstream political science scholarship: (1) the territory of the state is the basis of sovereign space, (2) there is a definitive territorial demarcation between inside and outside the state, and (3) the territorial state contains society and exists before it (Agnew 1994, 59). As Agnew (1994, 77) warned, "In idealizing the territorial state we cannot see a world in which its role and meaning change."

Writing more recently, Nisha Shah argues that we remain within this territorial trap, despite efforts to reconceptualize the state and processes of globalization. In her view, the territorial trap that lingers is the assumption equating territory with the physical land of the state (Shah 2012, 58). Seeing territory not just as this physical realm but also a normative and productive concept, Shah argues that "globalization theories must not only focus on whether goods, people, and information move through – permeate- territorial borders, but also focus on whether and how notions of global space are

providing a new political theory that stands in contradistinction to territory" (Shah 2012, 58). In other words, globalization theorists, and theorists of state power, need new conceptions of territory and space that are adequate to processes of globalization (Shah 2012, 71).[85]

What Agnew and Shah point to is the inadequacy of thinking state power and sovereignty only through a "traditional" fixed and physical conception of territory. In response, geographers have led an effort to think about territory in a different way.[86] Arguing that territory is historically produced as a concept, Stuart Elden reminds us that much is missed when territory is thought only in its physical-land register.[87] He suggests that territory is thought and produced in other ways. For example, drawing on geographers writing on vertical geopolitics and aerial geographies,[88] as well as theorists such as Peter Sloterdijk, Elden invokes thinking about territory in volumetric terms (Elden 2013b). Using the example of tunnels that cross Israel's borders, Elden shows how territory needs to be understood not only above and below the surface of the earth, but also between and through these spaces. Thus territory is not simply a plane or

[85] It should be noted that globalization is by no means a new problem – what is important here, as we will see moving forward, is that the conception of territory as fixed land over which the state rules has always been a fiction of power. When understood as the space of sovereign power, territory is at once multiple, contested, and continually changing.
[86] Note that the following discussion of efforts to think territory with different conceptual tools leaves out a large body of interdisciplinary literature focused on critiquing the concept of the border. Much of this literature, while opening up the concept of the border, does not engage with territory explicitly, often retaining the notion that territory is the physical extent of the state. See, for example, Andreas (2003) or Rajaram and Grundy-Warr (2007).
[87] Elden has written extensively on this topic. For the most thorough overview, see his recent book *The Birth of Territory* (Elden 2013a).
[88] See for example Graham (2004).

surface, it is three-dimensional; and also is dynamic and constantly changing (Elden 2013b, 36).

Joe Painter similarly advocates a shift to understanding territory as continuously in process. Because of this emphasis on becoming, territory is seen by Painter to be more networked than a homogenous planar space. As he writes, "Territory is not the timeless and solid geographical foundation of state power it sometimes seems, but a porous, provisional, labour-intensive and ultimately perishable and non-material product of networked socio-technical practices" (Painter 2010, 1116).[89] Furthermore, we might think of territory also as felt and embodied. In *Aerial Life*, Peter Adey provides a useful study in the affective nature of territory. For him, territory is not only not rooted to the ground but also is produced in part through and on the body. One example of this is the Air Scouts in Britain at the beginning of the twentieth century, essentially a training program and camp for young men who were not flying planes but participated in simulations, games, and drills. As Adey describes, through the physical routines of the Air Scouts, aerial life begins to emerge as "a body readied for performance, prepared for war; a body militarized and posed to step into action; a citizen-body militarized attaining stronger links with the body of the nation" (Adey 2010, 53).

As the space of state power, then, territory is a less a thing or demarcated space than it is a complex outcome and a process – a political technology (Elden 2010). Territory both reflects and is productive of state power, rather than simply a container in which state power is exercised. Understanding territory as a political technology, one

[89] There are significant parallels between Painter's conception of territory and Doreen Massey's (2005) critique of Cartesian/modern space.

that emerges in many registers (for example, volumetric, aerial, or embodied), opens up the question of the relationship between territory and sovereignty. This challenges us to think about the ways that sovereignty has not always been "fixed" to physical territory in the traditional sense, but also how sovereign power still is operative today. Being more attuned to the productive and dynamic nature of territory might enable us to see sovereign power working in places that might otherwise remain out of sight.

For example, Ann Laura Stoler shows that sovereign power, when delinked from the idea of the bounded, physical state, emerges as multiplicitous and dynamic. For her, sovereignty is better understood through a range of degrees: "We can think of [imperial formations] better as scaled genres of rule that produce and count on different degrees of sovereignty and gradations of rights. They thrive on turbid taxonomies that produce shadow populations and ever-improved coercive measures to protect the common good against those deemed threats to it" (Stoler 2006, 128). Stoler's primary target is mainstream scholarship on colonialism, which she argues retains a concept of sovereignty tied to the nation-state and thereby misses the way that state power, especially imperialistic state power, has always exceeded these boundaries. What is especially poignant about Stoler's analysis is that extra-territorial exercises of state power are themselves not exceptions, but rather form the very basis of the state:

> Ambiguous zones, partial sovereignty, temporal suspensions of what Hannah Arendt called 'the right to have rights,' provisional impositions of states of emergency, promissory notes for elections, deferred or contingent independence, and 'temporary' occupations – these are conditions at the heart of imperial projects and present in nearly all of them. (Stoler 2006, 139).

What does this then look like in the context of the drone strike? While focused primarily on the biopolitical character of drone strikes, and in particular on pattern of life analysis, Ian Shaw's formulation of the "Predator Empire" is a useful starting point. Geographically, the drone wars of the Predator Empire (a term he uses to describe the global proliferation of drones) can only be understood topologically. Space, here, is no longer fixed to physical territory, but is shape-shifting and tied to aerial mobility. As he writes, "Predators 'fold' space with an unparalleled level of aeromobility, reducing the importance that geographic distance and obstacles have in separating 'there' from 'here.' This power topology is not strictly exercised *across* space then, but rather, in its capacity to crumple an environment by *digitizing* it" (I. Shaw 2013, 15).

Thinking of the drone strike topologically allows us to think differently about the spaces in which sovereign power acts. Following Foucault's description of sovereign power as akin to a siege,[90] Mbembe shows how sovereign power (what he calls necropower) and biopower are combined in late-modern colonial occupation. Drawing on the example of the Israeli occupation of Palestine, he writes, "The *state of siege* is itself a military institution. It allows a modality of killing that does not distinguish between external and internal enemy. Entire populations are the target of the sovereign" (Mbmebe 2003, 30). Similarly, with the drone strike we can identify a state of siege – one that crisscrosses the globe and is continuously changing, folding into new configurations.

[90] "Power in this instance was essentially a right of seizure: of things, time, bodies, and ultimately life itself; it culminated in the privilege to seize hold of life in order to suppress it" (Foucault 1990, 136).

What happens in these moments of folding? In a sense, the spatiality of sovereign power is reconfigured. With this folding, the zone of the drone strike becomes incorporated into the scope and extent of state power. It is seized in the lens of the drone. Evoking topology also attunes us to the temporality of this reach of sovereign power. It is not permanent but tied to the temporality of the war on terror, as we have seen with the mobilization of a broad concept of imminence in the Obama administration's legal justifications for targeted killing. These global foldings of sovereignty are ephemeral, temporary, and always possible.[91] Sovereign power is always potentially expanding, or rather, folding.

This concept of ephemeral sovereignty helps us to better understand two important aspects of the emergence of lethal surveillance and contemporary drone wars. The first is that it helps us to identify an element of sovereign power in the drone strike, which is ultimately a direct action on life. Unhinging sovereignty from an understanding of fixed territory opens up space for us to see how this can work "outside" of the state. As Mbembe reminds us, "…it makes little sense to insist on distinctions between 'internal' and 'external' political realms" (Mbembe 2003, 32), divisions that are continuously recreated, mobile, and, in the case of lethal surveillance, tied to the perceived imminent threat from individuals around the globe. Second, and related, ephemeral sovereignty marks the emergence of new spatialities of power. Viewing power topologically reframes debates over how drone strikes violate the sovereignty of

[91] This is not the same as Gregory's eventful violence mentioned earlier, where violence can happen anywhere. Rather, it is state power that becomes eventful. This is also different from Elden's discussion of "contingent sovereignty," which is more in line with blurred boundaries rather than the reconfiguration of the space of sovereignty (Elden, 2009).

Pakistan or Yemen, for example. We can see how multiple foldings of sovereignty might exist at the same time.

The wielding of sovereign power is justified by the US government through a legal framework that evokes a right to self-defense and the emergence of an imminent threat. Everywhere on the globe is rendered as an always-possible space to be seized in the targeting of individuals. This is predicated not only on an assumed right to kill but also a linking of the action of killing to a network of global surveillance. These two aspects of lethal surveillance – the direct action on life and global knowledge production – signal a contemporary resurgence of the question of sovereign power and also reflect a long-standing Western modern project of command and control, which I turn to now in the next chapter.

Chapter 5

Command and Control: The Technological Rationality of the Drone Strike

"…and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it." (Borges, 1998: 325)

A selection from a 2011 UK military document on drones reads at once distantly futuristic – drawing inspiration perhaps from the aerial landscapes of Bladerunner – and unsettlingly familiar. It depicts a scenario the military thinks it may likely face before 2030 and is worth quoting in full:

> **Scenario**. A coalition force has been struggling to detect and neutralize the constituent elements of a terrorist organization embedded in a *super city* of 38 million people. The city is on the verge of bankruptcy and risks economic collapse which if allowed to happen, would have global consequences. The city occupies nearly 1800 square miles of coastal plain and has 5 seaports and 4 airports. Due to size and numbers, only key areas can be dominated by ground forces of nearly 80,000 personnel and then only for short periods. Anti-state forces located in the city conduct smuggling, cyber-crime, people trafficking and other activities, alongside their ongoing struggle with the state for greater control of the city, its assets and its population. Their ideology, global connections and willingness to use extreme violence and armed force means that establishing a secure environment is beyond the capability of local security forces. It is vital that operations, however mounted, allow normal life and economic activity to continue.
> **Concept of Operations**. The concept of operations is to use highly mobile air and ground forces to exploit information gained from a wide array of unmanned ground and air sensors, as well as network analysis, communications interception and cyberspace monitoring. At sea, the coalition task force takes data from a range of organic and land-based unmanned aircraft and unmanned surface and underwater vessels. This data is used to control key points and routes, to intercept vessels suspected of conducting illegal activity and to dominate the waters within 1000nm radius of the city. Rules of engagement are restrictive as city authorities are wary that overzealous activity by coalition forces could be used by the

terrorists to provoke further riot and mass strikes, similar to those that led to the loss of 28,000 lives in the previous year. All classes of unmanned aircraft operate in and around the city and are fully integrated into the airspace.
Current Situation. Ten days previously, 100 x Class I micro ISR *Perch and Stare* unmanned aircraft were deployed to key locations in the city. Their nano-material coatings provide camouflage by adopting the same colour as their surroundings, while embedded solar cells augment the on-board fuel cells by recharging capacitive energy stores during daylight. Working collaboratively in a network, many of the aircraft have self-repositioned to gain further intelligence data and 72 are still operational. This morning at 0400, an unmanned ground vehicle deployed small swarms of nano unmanned aircraft in 3 separate locations. These aircraft, resembling hand-sized insects and weighing less than 50g have penetrated and concealed themselves inside more than 20 buildings believed to be connected with terrorist leadership operations.
At around 0530, data began to be received from the swarms and is currently being analysed by the coalition's data processing centre, a secure underground facility located over 1000 miles away and capable of collating, analyzing and exploiting nearly 100 petabytes of data every day. Bio-identification software agents in the swarm allow them to identify and attack known terrorist personnel when authorized. Following terrorist strikes against ground-based communication system nodes, a high level constellation of hybrid-engine powered *stratellite* unmanned aircraft provide a city-wide data network for both military and civilian use. Unmanned air-to-air refueling tankers provide fuel to the small number of manned aircraft that provide a city over-watch and unmanned aircraft co-ordinating function: a potent symbol of the high technology resources available to the coalition. These are seamlessly integrated into the air effect cloud – a range of mostly unmanned, intelligent software agent controlled, aircraft that are able to provide the full range of air effects.
Tactical mobility rotary wing aircraft are ready to lift ground forces into position when offensive operation are authorized. They will be accompanied by new medical evacuation unmanned aircraft, which have a full remote medical aid capability built in; a team of rear-based surgeons will oversee and advise the on-board robo-doctors if required. (Ministry of Defence, Development, Concepts, and Doctrine Centre 2011, 7-7, 7-8)[92]

It is not too difficult to imagine this super city as New York, London, or Shanghai. It is also not very difficult to picture this scenario – it does not feel unrealistic - as it is foreshadowed by contemporary characteristics of modern warfare and security practices.

[92] Titled, "Epochs 5 to 6 – The Future Battlespace?", this is one of a few future scenarios presented in this UK document. The epochs refer to time passed from the present and the use of drones only intensifies through them.

It points to the increasing use of robots and other unmanned technologies, urban and domestic battlefields, networked and emergent enemies (in this case anti-state forces), and the importance of information and communications technology to military strategy. In this chapter I turn to the centrality of information to war, focusing on the technological character of the drone with the intent to better understand the trend toward increasing intelligence, surveillance, and reconnaissance (ISR) that is reflective in the emergence of lethal surveillance. The last two chapters have focused ultimately on the relations and mechanisms of power that crystallize in the practice of lethal surveillance. As we will see, an investigation into the technological characteristics adds to this analysis and reveals how modern ways of seeing are predicated as well on relations of control.

One of the challenges of studying the drone as a technological object is remaining attentive to the drone's temporality. Much of the academic scholarship and policy research on the contemporary drone and other military technologies tends to assume that the drone is new, the result of forward-moving technological progress and/or marking a significant break with the past. This has the effect of demarcating the analytical lens to the present and to the future.[93] As I have argued throughout this thesis, one of the benefits of shifting our lens to the past is that we can see how the contemporary drone did not emerge "out of the blue," but rather is embedded in much longer histories and developments in war, science, and governance. The drone, as a technological object,

[93] There is a diverse body of literature that could be grouped under this assumption of newness, and ranges from explicitly articulating this claim to indirectly maintaining this assumption by not accounting for the drone's history. For examples of the former, see the large Revolution in Military Affairs (RMA) literature (for an extensive bibliography: http://www.comw.org/rma/bib.html).

comes from somewhere: its particular configuration or use may be new, but its parts and functions contain important traces of the past.[94]

One of the outcomes of analyses that focus on the newness of the drone is that they tend toward a depiction of the drone as cyborg, beyond human, and/or postmodern. In this view, the UK scenario described above looks like a dystopian future or our postmodern present – one where humans and society are displaced by robotic vehicles, and where information, data, and machines displace human plans and goals. Yet this view misses the persistent modern technological and scientific rationalities that are productive of both the contemporary drone and the practice of lethal surveillance. Taking into account the evolution of the drone, especially the development of ISR that traces alongside it, shows that the contemporary drone and the trend toward automated drones reflects less a shift to postmodern or "non-human" war than a climactic point of modern technological rationality, and a very modern scientific desire for global mastery and control. I argue that we must understand this aspect of drone technology also in order to think about effective resistances to lethal surveillance, which I turn to in the next chapter.

In the sections that follow, I first engage with scholarship that takes account of the drone as a technological object. This literature focuses specifically on the technical

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[94] Michel Serres describes this approach beautifully in his conversations with Bruno Latour: "What things are contemporary? Consider a late-model car. It is a disparate aggregate of scientific and technical solutions dating from different periods. One can date it component by component: this part was invented at the turn of the century, and other, ten years ago, and Carnot's cycle is almost two hundred years old. Not to mention that the wheel dates back to Neolithic times. The ensemble is only contemporary by assemblage, by its design, its finish, sometimes only by the slickness of the advertising surrounding it" (Serres and Latour 1995, 45). Carolyn Marvin's *When Old Technologies Were New* can be seen also as an example of this approach, which emphasizes what is rendered invsible about contemporary technologies when their histories are not taken into account (Marvin 1988).

character of the drone, seeking to understand it *as a technology*. These analyses take different forms, but largely focus on understanding the drone as a visual regime tied to an all-seeing eye. I show, however, that while important to identifying a technological rationality in lethal surveillance, such accounts miss an understanding of "command and control" (linking information gathering to action) as it relates to this visual regime. Understanding the role of command and control places the drone within a decidedly modern scientific rationality, linking knowledge and control. The third section unpacks this rationality, reading Descartes' call to mastery and domination in connection with the military's striving for command and control. Finally, I look at the significance of this for examining the future of drone development: automation.

The Visual Regime of the Drone

Scholarship that has sought to engage critically with the drone as a technical object has largely focused on the drone as a marker and/or producer of a particular kind of visual regime.[95] The screen in front of the drone operator as well as the "bird's-eye view" (or more accurately, drone-eye view) projected on to it are central components of these analyses. Within this visual regime, the screen is a mediating technology, producing and filtering a certain way of seeing, both for the drone operators and the complex assemblage of viewers watching the drone feed (Cockburn 2015, 2-3). Much of the popular discussions around drones emphasize the distancing, dehumanizing, and video gaming effects of the screen on the operators and those watching the video feed.

[95] There are other foci, such as the video game character of drone warfare or the unmanned/robotic quality of drones, but these are largely captured within analyses that emphasize the visuality of the drone.

Yet, as Gregory argues, the function of the screen is more complicated and bound up in militarized visualities and Western ways of seeing. In "From a View to a Kill," Gregory sets out to unpack the "scopic regime" that the screen or view from the drone is embedded in. He observes that this view produces more of a mediated intimacy than an anonymity: "Contrary to critics who claim that these operations reduce war to a video game in which the killing space appears remote and distant, I suggest that these new visibilities produce a special kind of intimacy that consistently privileges the view of the hunter-killer, and whose implications are far more deadly" (Gregory 2011a, 193). Through the screen, only inches away, the drone operator can see more than ever before, including the aftermath of a blast.

This intimacy, however, is of a certain kind; it is also mediated, as Gregory reminds us. Through the screen of the drone, people are interpreted, read, or coded as enemies and as engaging in dangerous behavior. Furthermore, the landscape below, while seen in ever-greater detail, remains "obdurately Other" (Gregory 2011a, 201). Gregory draws on a powerful example to make this point. In February 2010, a drone crew was following a group of people traveling near a US Special Forces team conducting an operation. Deemed suspicious, "objects become rifles, praying a Taliban signifier, civilians 'military-aged males,' and children 'adolescents'" (Gregory 2011a, 203). Only after the blast were bodies clearly identified as civilians, including women and children.[96] Twenty-three people were killed (Cockburn 2015, 10). The drone operators, in other words, were predisposed to interpret what they saw through the screen

[96] Andrew Cockburn (2015) provides a more detailed account of this strike in the first chapter of his book *Kill Chain: The Rise of the High-Tech Assassins*.

in a particular way.[97] This racially-tinged lens persisted even as it started to become clear after the blast that civilians had been targeted:

> *Sensor: That's weird.*
> *Pilot: Can't tell what the fuck they're doing.*
> *Safety observer: Are they wearing burqas?*
> *Sensor: That's what it looks like.*
> *Pilot: They were all PIDed* [positively identified] *as males. No females in the group.*
> *Sensor: That guy looks like he's wearing jewelry and stuff like a girl, but he ain't…if he's a girl, he's a big one.* (Quoted in Cockburn 2015, 9-10)

Nasser Hussain also examines the visual regime of the drone and the ways of seeing it produces, and is especially attentive to how seeing works through the drone: "Drone strike footage is not a film in any common sense of the term, but it is still video footage, shot from a camera and visible on a screen, and its filmic qualities demand attention" (Hussain 2013). Like Gregory, Hussain finds an intimacy in the aerial view from the drone. Hussain pushes the 'Otherness' of this intimacy further, however, to argue that the overhead shot or view from above establishes control and enables asymmetric violence. Drawing on Schmitt's analysis of air power as having a policing character, Hussain writes that the aerial view criminalizes those in its sights, justifying violence again them. As he explains, "With the overhead shot, there is no possibility of returning the gaze. The overhead shot neither invites nor permits participation in its visual economy. It is the filmic cognate of asymmetric war" (Hussain 2013).

Hussain also reminds us, however, that the perspective of the drone is not only about the visual. The wide-seeing aerial shot from above is contrasted with the lack of

[97] Gregory further expands on this in an earlier piece on counterinsurgency operations and the histories of violence and Orientalism embedded in them (Gregory 2008).

sound coming through the screen. Drone operators often hear audio from the teams on the ground or observers tapped into the feed from around the world, but the lack of sound tied to the image on the screen creates a "ghostly world" (Hussain 2013). The silence of the video feed (not to mention its gray-scale color, which I have not found critical commentary on) is contrasted to the experience of those on the ground, who are denied access to the gaze of the drone but encounter it through sound.[98]

While Hussain's attention to sound and his effort to move his analysis beyond the visual gaze could help us study the drone through what Adey calls an atmospherics of security (Adey 2014), it is worth dwelling further on the visual element. For Gregory, the effect of the view from the drone – the information collected through its various sensors – is a "God's eye view" of hypervisibility (Gregory 2013, 58). This is not just a view from above (a bird's eye view), but more importantly an all-knowing one; a perspective that presumes to see everything. Caren Kaplan calls this a "cosmic view," drawing on Denis Cosgrove's Apollonian gaze; what is especially significant for her, in understanding this cosmic/God's-eye view, is the relation of the viewer to the view: it produces "the sight of the world from the air and the question of one's location in relation to it as a marker of subjectivity" (C. Kaplan 2006, 401).[99] The cosmic view, in other words, renders what is

[98] Recall that a common theme in interviews conducted for the *Living Under Drones* study was the sound of the drone and the terror and anxiety it caused. One man quoted in the study's report said "drones are always on my mind. It makes it difficult to sleep. They are like a mosquito. Even when you don't see them, you can hear them, you know they are there" (Stanford International Human Rights and Conflict Resolution Clinic, Global Justice Clinic at NYU School of Law 2012, 82-83).

[99] This is similar to Donna Haraway's "God-trick" view. As John Pickles explains, "This transcendental positioning is both the view from above, an elevated two-point perspective bird's-eye-view, *and* an all seeing eye that views everywhere at the same time" (Pickles 2004, 80).

seen as object to the viewing subject. This (hyper) visibility inevitably falters – as we have seen, in different ways, the drone does not always know what it strikes – but its promise of seeing, mapping, and knowing a complex landscape remains a powerful organizing principle for drone warfare – and we might say Western war more generally. The production of the aerial viewing subject is itself a violent one, giving it an affinity with warfare. As Adey, Whitehead, and Williams write in the introduction to *From Above: War, Violence, and Verticality*, "As an interface of science, ways of seeing and militarism, there are few perspectives more culpable in their enlistment into practices of war, violence and security than the aerial one" (Adey, Whitehead, and Williams 2013, 3).

In short, the drone's-eye view is imbued with what John Pickles calls the "cartographic gaze." This gaze describes certain ways of seeing, linked to the practice of mapping and scientific practice, and is characterized by an observer-based epistemology, technical/scientific modes of representation, universalist logic, and a transcendental vantage point (Pickles 2004, 80). This is a scientific, empiricist view of the world that privileges visibility and mappability as the basis for truth and knowledge seeking. This way of seeing permeates the history of the drone. The Powerscene computer program, developed for use alongside the unarmed Predator during flights over the Balkans, fueled the military's hope of creating a real-time operational map of the entire world. This has obviously become more of a reality with the widespread use of GPS and geo-coded data. Yet, revisiting this example, there is a sense that analyses that focus on hypervisibility and the visual regime of the drone are not capturing everything of importance about the visual technology of the drone, especially in the context of the emergence of lethal surveillance out of this history of ISR and the importance of information to warfare that

emphasized the ability to act on information in increasingly dynamic environments. As Pickles' reminds us, the view from above or the cartographic gaze is not just about the all-knowing view – seeing everything in its place – it is also, and we might argue more fundamentally, about *doing* something with that knowledge:

> One consequence of this way of making the earth visible is that nature, earth and space are rendered as a resource, as a source of information and value, in which all information will be available in one place at one time. Such a universalism and transparency grounds the scientific world-view and its dream of utopian communities of openness, reason and democracy. (Pickles 2004, 80)

What needs to be understood here, I argue, is not just a shift to increasingly all-knowing ways of seeing, whether we understand these in the realm of surveillance, biometrics, or the drone view. Alongside this view from above, and implicated in it, is the scientific impulse of "command and control." This might seem like a subtle shift in focus, but as I show below, the cosmic view is not just a privileged view that codes or sets its objects in a particular relation to itself – an eye that wants to see more and more. It also *transforms* and *produces value*, a somewhat neglected aspect of the scientific visual regime that the drone and similar surveillance technologies emerge. Seeing command and control as the driving force behind the trend toward increasing ISR helps us to understand better the tendency to lethal surveillance present throughout this history. It also helps us to root the "surveillance" side of the practice of lethal surveillance in relations of domination and control. Its knowledge production is fundamentally a violent one, which allows us to begin to draw connections between the targeted killing of the drone strike and the persistent gaze of the drone. Finally, we also can begin to link the

violence of modern science to the violence underpinning the project of liberal governance.

Command and Control: Descartes' Dream of the Drone

In his book *Wired for War*, Peter Singer (2009) makes a fairly straightforward argument: there is a robot revolution happening in war that we need to pay more attention to. The present and the future look more like the UK scenario than we realize. *Wired for War* is not as much a critical intervention into this development as much as it is a documentation of evidence of this shift, providing numerous examples ranging from "warbot" bomb de-fusers to automated drones. A common theme running through many of these examples and descriptions of new technologies is how robots are creating a distinctly new relationship between humans and war. This, for Singer, is a recent phenomenon: "Up until today, each of the functions of war took place within the human body and mind. The warrior's eyes saw the target, their brain identified it as a threat, and then it told their hands where to direct the weapon, be it a sword or rifle or missile. Now each of these tasks is being outsourced to machines" (Singer 2009, 78). Put in military language, the human is becoming increasingly "out of the loop," at best peripheral to the decisions and practices involved with waging war. For Singer, this development is not necessarily bad, but the fact that it is happening largely unnoticed is cause for concern. In this view, the drone and other unmanned technologies of war represent a fundamental shift in the relationship between war and technology, and potentially even between humans and technology more broadly.

If we look at this relationship through the lens of command and control, Singer's claim that contemporary warfare presents itself through a fundamentally different relationship between humans and machines begins to fall apart. As we saw clearly in the late 1990s, in Vietnam, and in the intelligence developments surrounding the U-2 spy plane during the Cold War, the military's ever-expanding thirst for information[100] is supported by a desire to use this as the basis for action. Machines of war have always been bound up with this action. As van Creveld observes of early air defense systems, providing a counter-argument to Singer's claim:

> Since speed and accuracy counted for everything, there was a constant pressure to replace human operators by machines and, as the next logical step, have those machines communicate directly with each other. This trend was reinforced by the fact that many of the considerations involved could be quantified and entrusted to automatic devices, from which the first computers were later to evolve. (van Creveld 1991, 193)

This impulse to automate and incorporate machines – especially information-processing machines – into the operations of war is Manuel De Landa's subject in *War in the Age of Intelligent Machines*. De Landa, concerned with the role of computer-based technologies in practices of warmaking, examines how these have changed over time across four broad areas of war: weapons, tactics, strategy, and logistics. In particular he looks at the development of computer-based weapons, what he calls predatory computers, and the drive by the military to remove humans from the process of decision making, particularly the decision to kill or attack. As he writes, "The robotic predator…may be seen as the culmination of the long 'bridging' process started by electrical engineers and

[100] Remember too that this was not just visual information. As we saw during the Cold War, there was a notable shift in the kind of information collected with a greater emphasis especially on signals intelligence (SIGINT).

ballisticians in World War I, to channel scientific know-how into the creation of missiles and guns ever-less dependent on human skill for their performance" (De Landa 1991, 43-46). Presaging the incorporation of metadata into targeting practices, De Landa traces this attempt at removing the human by examining how control has been designed into these technologies. Ultimate control over the weapons system moves to finer and finer elements of information processing and decision making: from the human to the hardware to the software and eventually to the data (De Landa 1991, 157). This makes the decision-making process more complex and dynamic, requiring more flexible military command structures. Yet De Landa notes that these command structures have not changed alongside this shift. As he writes:

> The destiny of tactical command systems, evolving either on the basis of humans creatively interfacing with their machines or along a line of progressive overcentralization pushing it to its self-destructive limits, will depend on whether the military heeds the advice of such war theoreticians as Van Creveld, Keegan and Dupuy: that the battlefield is first and foremost a place of terror; that fear and friction generate a fog of war which circulates through the circuits of the machine as much as structured data does; and that the best tactical command system is not the one that, in the face of battle, tries to maximize certainty at the top, but the one that distributes uncertainty more evenly up and down the chain of command. (De Landa 1991, 82)

In his view, the military's efforts to increasingly remove the human from the decision-making loop are ultimately self-destructive because they are caught within a centralized and rigid system of command that is not attuned to the complexity and uncertainty of war (De Landa 1991, 82). For De Landa, the problem is that the uncertainty of war is not taken into account in the incorporation of military technology. He argues instead for a more symbiotic relationship between humans and machines, aimed not at removing but enhancing the human (and the human's ability to respond to

uncertainty). As I will show, this argument does not quite provide the alternative De Landa hopes for as efforts at automating drones have at their root the enhancement of the human by overcoming its limitations. The problem with command, in other words, is not centralization, but how the human is conceptualized.

Antoine Bousquet broadens De Landa's examination of computing machines and war to look at the interrelation of science and war more generally, and specifically how the "scientific way of warfare" has changed overtime. Bousquet also is interested in how scientific ways of thinking and conceptual structures have shaped the practices of war, identifying (somewhat in parallel to De Landa) four metaphorical structures to describe key shifts in this relationship : the mechanistic (clock), the thermodynamic (engine), the cybernetic (computer), and the chaoplexic (network). For Bousquet, each of these periods or shifts identifies a different way of conceptualizing and responding to the chaos, uncertainty, and complexity of war. Each of these also mobilizes machines in one way or another to overcome these challenges. Identifying rigid command and control structures and centralization with the third cybernetic period (the period of De Landa's concern), Bousquet envisions a potentially positive change (like that change De Landa was hoping for) with the emergence of chaoplexic war where the military today has sought to embrace the complexity and uncertain nature of warfare. For Bousquet, the most effective forms of war have been those that, following Clausewitz's understanding of war's inherent unpredictability, have incorporated complexity into their systems (Bousquet 2009, 187). Here he describes efforts by the military to learn from nonlinear scientific thinking and systems, such as complex adaptive systems and insights from evolutionary biology.

The shift to drone warfare and automated killing more generally might be viewed in the context of chaoplexic war. We have seen, for example, a push across the history of the drone to develop more responsive targeting and surveillance practices from challenges presented by the dynamics of the battlefield. Yet, while Bousquet's periodization is useful to see key themes across the development of modern war, it misses what is common across them. Command and control, understood more broadly as command of or control over an environment, is not limited to the cybernetic period. All periods are engaged with the project of creating order and managing the messiness of war (not to mention the project of "creating order" through killing) seeing scientific and technological development as a clear avenue through which to improve this. As Bousquet himself reminds us, "The scientific project is thus inextricably connected to the drive for greater control and power over the world…" (Bousquet 2009, 11). However, because he locates command and control only in the third cybernetic period, he tends to see chaoplexic war as escaping this tendency of science in its embrace of uncertainty. Instead, I suggest that chaoplexic war signals less a break with scientific aims of the past than a return to the roots of modern scientific practice itself – where uncertainty is not so much overcome but harnessed and directed. In other words, what we see reflected in the emergence of lethal surveillance, with the merger of knowledge production and killing, is not the consequence of a turnover of war to machines or a new era of post-modern war, but rather the realization of a dream of an early modern scientific project. Returning to the early modern project of knowledge production, its goal of command and control, and its conceptualization of the human in reference to this project, illuminates the tendency to lethal surveillance within modern science.

Descartes himself begins with a dream at the start of the *Meditations*. Sitting one night in his robe by the fire, Descartes follows a thought experiment that leads him to question his sense perceptions. Something that appears obviously true – for example that he is writing on the sheet of paper before him – becomes deceptive at further examination. As he describes, "How often does my evening slumber persuade me of such ordinary things as these: that I am here, clothed in my dressing gown, seated next to the fireplace – when in fact I am lying undressed in bed!" (Descartes 1998, 60). What Descartes is getting at is a fundamental distrust of human experience, and this distrust shapes his philosophical and scientific investigations. Our bodies trick us and cause us to imagine things that are not really there or to see things imperfectly, attaching an element of doubt to the knowledge we gain about the world. As he writes, "Even though we see the sun very clearly, we should not on that account judge that it is only as large as we see it, and we can well imagine distinctly the head of a lion grafted onto the body of a goat, without having to conclude for that reason that there is a chimera in the world, for reason does not at all dictate to us that what we thus see or imagine is true" (Descartes 1998, 22).

This element of doubt and trickery that Descartes attributes to the senses leads him to question what can be known with absolute certainty: where does truth lie if not with human experience? Without going too far into his proof here, suffice to say that Descartes finds truth in what can be known through the mind alone and not through the "force of my perception" (Descartes 1998, 70). The path to truth, therefore, is through the mind and in particular through geometric and mathematical reasoning. As he notes, "For whether I am awake or asleep, two plus three make five, and a square does not have more than four sides" (Descartes 1998, 61). Following mathematical and rational

reasoning—which for Descartes is of the mind alone—will lead to clear and distinct ideas about the world and thus to the truth of things. This is the root of the "cartographic gaze" that Pickles identifies and an important part of the modern scientific method, where the world becomes knowable by making it calculable; not by seeing it per se, but by transforming what is seen through the logics of rational mind understood in mathematical terms.

There are two significant points to draw out here as it relates to the broader discussion about the drone, its visual regime, and command and control. The first is a reminder that Descartes' aim in constructing his method is not just to study the world, to learn its truths, but to transform and control it. In other words, this is a *useful* knowledge, and establishes a dynamic of power between the human and its objects of investigation. As he famously asserts, "knowing the force and the actions of fire, water, air, the stars, the heaven, and all the other bodies that surround us, just as distinctly as we know the various skills of our craftsmen, we might be able, in the same way, to use them for all the purposes for which they are appropriate, and thus render ourselves, as it were, masters and possessors of nature" (Descartes 1998, 35). Related to this aim of mastery and control is the relation of power at the basis of the process of knowledge production itself, which is also transformative. Things in the world only come to be knowable when enacted on by the mind –a kind of violence. They do not present themselves to the mind but are acted on, which establishes an asymmetric relation of power between the human (mind) and the rest of the world: "Thus, if we quite often have ideas that contain some falsity, this can only be the case with respect to things that have something confused or

obscure about them, because in this respect they participate in nothing; that is, they are thus confused in us only because we are not perfect" (Descartes 1998, 22).

Command and control is the aim of Descartes' practical philosophy and forms the basis of a technological rationality that has subsequently woven its way through Western modern scientific practice. In this view, technology is conceptualized primarily as a means to an end, an instrument or tool for transforming the world and carrying out the project of mastery and control that Descartes calls for.[101] In other words, technology becomes a way of transforming the world to desired ends. What is especially dangerous about this conception of technology and scientific practice, following the Frankfurt School among others, is that the instrumental reason it is rooted in involves a continual process of abstraction that is ultimately destructive – quickly moving from mastering and controlling nature to dominating and controlling humanity. With the increasing technologicalization of society, we see this technological and scientific rationality extend to all aspects of life.[102] As Theodor Adorno and Max Horkheimer write:

> ...world domination over nature turns against the thinking subject itself; nothing is left of it except the ever-changing 'I think,' which must accompany all my conceptions. Both subject and object are nullified. The abstract self, which alone confers the legal right to record and systematize, is confronted with nothing but

[101] Descartes goes on to say that becoming master and possessors of nature is "desirable not only for the invention of an infinity of devices that would enable one to enjoy trouble-free the fruits of the earth and all the goods found there, but also principally for the maintenance of health…" (Descartes 1998, 35). We can also see this view of technology in Descartes' writing if we take into account his discussion of the experiment – the experiment in a sense acts as a mediator between the world and the rationality of the mind (Descartes 1998, 36). Technology then, in addition to being used as an instrument in experiments to know the world, is also understood to be a mediator between man and nature as a tool to carry out human will and design.

[102] I come back to this again in the next chapter in my discussion of Heidegger and Benjamin, who address similar themes and concerns in connection to technology and modern science.

> abstract material, which has no other property than to be the substrate of that right. The equation of mind and world is finally resolved, but only in the sense that both sides cancel out. The reduction of thought to a mathematical apparatus condemns the world to be its own measure. What appears as the triumph of subjectivity, the subjection of all existing things to logical formalism, is bought with the obedient subordination of reason to what is immediately at hand. (Horkheimer and Adorno 2002, 20).

Descartes' formulation of masters and possessors of nature becomes masters and possessors of ourselves and each other. For the Frankfurt School, the necessity for identifying and understanding this technological rationality was in part rooted in a concern and critique of the atomic bomb and the principle of mutually assured destruction. This reveals both the destruction of humanity at a massive scale, in Hiroshima and Nagasaki, as well as the potential of (mutually assured) destruction of one's *own* self in the process. Might we see a similar violence at work at the scale of the individual in the drone strike?

The epistemological violence of technological rationality reveals itself not only in shaping the lens through which potential targets are interpreted through the visual regime of the drone, but also in the drone strike's direct action on life. Command and control – knowing and transforming— are crystallized in the practice of lethal surveillance. With the push to automate drone strikes, command and control is pushed even further. The "thinking subject" is unhinged from the human body and its fallible senses and connected directly to its total transformative (and destructive) potential. As I show in the next section, this development promotes a particular view of the human in relation to war and killing machines, rather than the complete removal of the human from warmarking.

Automation and Technological Rationality

The push to automated drones reflects a specific conceptualization of the human rooted in a modern technological and scientific rationality. This is the second significant insight that emerges from turning back to Descartes and early modern science. For Descartes, the human is fundamentally split. The human as body, as sense preceptor and as informational input, is separated from the human as mind, as thought processor and as truth source. For Descartes, the human body with its fallible senses is better understood as part of nature. His long discussion of the functions of the heart in *Discourse on Method* compares the various functions of the body to a machine and to an animal (Descartes 1998, 31).[103] It is the rationality of the mind that distinguishes the human from the non-human world. This has the effect of enacting a similar relation of power that we see between man and nature in Descartes' practical philosophy, but one that is internal to the human, between the mind and the body. Thus, it is not just nature, but also the body that is to be controlled.

What is especially significant about this conceptualization of the mind/body split for the development of automation is how human error is understood within this scientific framework. For Descartes, human error represents a defect of the human, and results

[103] In *The Passions of the Soul*, Descartes writes about death, "And let us recognize that the difference between the body of a living man and that of a dead man is just like the difference between, on the one hand, a watch or other automaton (that is, a self-moving machine) when it is wound up and contains in itself the corporeal principle of the movements for which it is designed, together with everything else required for its operation; and, on the other hand, the same watch or machine when it is broken and the principle of its movement ceases to be active" (Descartes 1985, 329-330).

from the imperfectness and deceptiveness of the senses. We err, according to Descartes, when we act on ideas that we have formed not from reason but from our senses and perception. As he writes: "Obviously, if I were to consider these ideas merely as certain modes of my thought, and were not to refer them to anything else, they could hardly give me any subject matter for error" (Descartes 1998, 72). The challenge for Descartes is to try to act only from clear and distinct ideas or judgments. The aim, in other words, is to overcome the limitations of the human as body. Because of this formulation of error, the split of the human found in Descartes provides a different way of looking at attempts to remove the human from practices of war. Robotic warfare must be placed within this longer modern goal of overcoming human error as a path to truth and certainty.

One insight that emerges from examining the history of drone technology is that the relation of the human to the drone is conceptualized differently across programs. Sometimes the drone provided a non-human alternative to manned aircraft and systems, as the case with Lockheed's Tagboard drone during the Cold War, which was essentially a pilotless U-2 plane. Other times, and this intensified over time, the drone was seen to provide a more-than-human capability. It is with the more-than-human capabilities that the drone really succeeded in becoming a significant aspect of military campaigns, as we saw in the late 1990s and see today with the global proliferation of drone strikes.

Yet this desire is also evident throughout the development of drone technology, which has been tied to overcoming the limits of the human body in some way.[104] Even

[104] Here I focus on examples from the Cold War period, but we saw also in the early years period how drones were seen to be beneficial for their ability to fly in conditions where human pilots were unable (such as in fog or at night). It should also be noted that in describing efforts at overcoming limitations of the human body here, I am not

with the Tagboard drone, removing the pilot from the U-2 helped to overcome many of the challenges associated with flying a high-altitude plane. In fact, a large part of Lockheed's research effort for developing the U-2 focused on the physical limitations presented by the human body at high altitude. For example, the pilot's blood would boil and vaporize at altitudes above 65,000 feet, requiring that the body be adequately pressurized. This led to the development of a "complex life-support system" to allow the pilots to fly at high altitude for long periods of time (Pedlow and Welzenbach 1992, 62-63). Pilots were hooked into the plane through various tubes and connections, linking them through their pressurized suits to the controls of the plane. As Peter Adey (2010, 117) notes, this represents a view of the human body as machine, as a "gear-box of intensities, feeling, circulations and flows," that we have seen already in Descartes' writing. As Adey writes, "In the development of pilot training and the emergence of the field of aerial medicine, the pilot was matched up with the machine, becoming one. The pilot increasingly became conceived as a 'controlling and coordinating mechanism'…" (Adey 2010, 117). Therefore, even in manned flight, the limitations and inadequacies of the body presented challenges that were dealt with through a view of the human as body-machine.

Furthermore, drones radically expanded the surveillance capabilities of manned reconnaissance flights during the Cold War, allowing for persistent and extended

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including the arguments that the drone reduces the risk of injury or death in war. While obviously an important aspect of why drones are seen as beneficial, this argument fits more within an examination of how views toward the violence of war have changed more generally, as we saw in Chapter Three. As becomes very clear with the trend toward automation, the perceived advantages of the drone is increasingly framed in terms of its more-than-human technological capability.

surveillance instead of the episodic or fly-by "fast pass" surveillance provided by planes like the U-2 (Ehrhard 2010, 13). Describing a DARPA drone concept developed in the late 1970s to better detect the deployment of Soviet Union Backfire bombers, Air Force historian Thomas Ehrhard noted that persistent surveillance drones provided a capability that human pilots could not, writing that "The aptly named Condor was designed to loiter for a week—well beyond the capacity of a human pilot—in the vicinity of potential Backfire ingress routes to cue long-range missile launchers" (Ehrhard 2010, 22). Because of this loitering ability, coupled with a wide-range of sensors on-board, drones were able to collect a much greater amount of information than had been previously possible. This capability was useful for gathering information on the other side of the Iron Curtain, as well for complex and dynamic environments. For example, describing the deployment of Lightning Bug drones in Vietnam, Carl Schuster argues that, "With the introduction of these new drones, virtually every North Vietnamese communications system could now be detected and analyzed" (Schuster 2013, 54). This ability to collect, and eventually process, a large and diverse set of information over a long period of time was recognized even in the early 1960s. During a briefing to the Air Force to sell its drone development program, which eventually produced the Lightning Bug, a Ryan Aeronautical Company official pitched that:

> We believe the day need not be far off when, to cite examples readily understood by laymen, it would be possible to launch a pilotless jet aircraft say near Kansas City, and within hours know precisely what ships are unloading in New York harbor, the nationality of those ships, and the type and amount of cargo being unloaded…A high-altitude sweep originating over New Orleans could chart strategic sections of the Mississippi River from Baton Rouge to St. Paul, all in a matter of hours – and repeat that survey on a daily basis. Imagine, if you can, these flights being accomplished with precision and accuracy under the guidance of only an electronic brain! (Quoted in Wagner 1982, 13)

This last comment about precision and accuracy foreshadows how the problem of human error and the need for greater information and longer surveillance will come together in the development of autonomous drones.

Currently, drones like the Predator are valued by the military in part because of their ability to do things that humans cannot, including persistent surveillance. For the military, the deployment of drones is most compelling "where the human is a limitation to mission success" (Deptula 2009, 9). Automation is seen as a way to further increase this capability, especially as information processing demands become too complex for human decision making. For the military, transitioning more functions of war to automated technologies is a shift from a "man-in-the-loop" to a "man-on-the-loop" targeting process (Deptula 2009, 9). In automating drone strikes, a shift to "on-the-loop" displaces the human to more of a supervisory role, no longer identifying targets or making the decision to fire, but able to observe and intervene in the process if necessary. This push toward automation – eventually, perhaps, removing the human from the loop altogether – has the effect of subsuming the most fundamental decisions of war – to kill—into practices of automation, as Jeremy Packer and Joshua Reeves argue. Drawing on Schmitt's friend/enemy determination, they write that, "a clear shift is taking place in which human existentially derived friend or enemy distinctions are being replaced by computer algorithmic determination" (Packer and Reeves 2013, 328). There are two motivators to this. The first, as Packer and Reeves note, is the problem of human error (Packer and Reeves 2013, 313). The human is prone to mistakes, of being deceived by its senses, and the military sees this as a limitation and a vulnerability to overcome.

Second, and connected to human error, is the limit of the human body, which can only take in or process so much information or stay awake for so much amount of time.

Before turning to these arguments in more detail, it is useful to explain what is meant by autonomous drones, and there is actually an important distinction made by the military between *automated* and *autonomous* weapons systems. An automated drone is one that flies without being controlled by a remote pilot and responds to inputs from and changes in its environment based on pre-programmed rules (Ministry of Defence, Development, Concepts, and Doctrine Centre 2011, 2-3). Many aspects of the drone's functions, such as taking off, are currently automated, and we can think of auto-pilot on manned aircraft in the same fashion. Indeed, at the beginning of the twentieth century, the Larynx could be considered an early fully-automated drone flying a pre-programmed flight. Autonomy, by contrast, describes a machine's ability to act on its own and to adapt to its environment (Ministry of Defence, Development, Concepts, and Doctrine Centre 2011, 2-3). An autonomous drone is more self-aware compared to the automated drone and is able to "think" through and evaluate decisions. A fully autonomous drone in this sense does not yet exist, but there are degrees of autonomy, that vary with the amount of control given to the machine. The Air Force Research Laboratory, for example, uses a scale from one to ten to indicate the level of autonomous control. A level one is remotely guided and a level ten is a fully autonomous swarm of drones (Canning 2005, 5).[105] As level ten indicates, and as we see in the scenario at the start of the chapter, cooperation among machines is an important aspect of autonomy and creates a more complex and

[105] Levels in-between include "Adapt to Failures and Flight Conditions,"(level three) "Group Tactical Replan" (level six) and "Distributed Control" (level eight) (Canning 2005, 5).

wide-reaching system of command and control. As a 2007 Department of Defense roadmap notes, "This aspect [cooperation] is viewed as an important enabling capability for large-scale operations where object sensing, intervention, and surveillance are necessary and may occur simultaneously and in stride with other operations" (Department of Defense 2007, 49).[106]

One of the primary arguments given for increased research on autonomous drones – and echoing van Creveld's observations on early air defense systems –is that drones are (or at least will be) better at making the decision to kill than humans. There are three general components to this argument. First, the autonomous drone will make more ethical kill decisions than a human, in the contexts of the Laws of War, because it will be able to better distinguish between combatants and noncombatants in a complex and fast-moving environment (Arkin 2007; 2010). Second, the drone will be able to make better decisions because of its ability to process and act on a wide amount of information in a very short amount of time –seen as necessary in an increasingly complex war environment. This bypasses both humans' perception limitations, and their emotional reactions and assessments. As a UK report explains,

> Robots cannot be emotive, cannot hate. A target is a series of ones and zeros, and once the decision is made, by whatever means, that the target is legitimate, then prosecution of that target is made mechanically. The robot does not care that the target is human or inanimate, terrorist or freedom fighter, savage or barbarian. A robot cannot be driven by anger to carry out illegal actions such as those at My

[106] Interestingly, one of the arguments for autonomy in this DoD document, which follows from its discussion of cooperation, is that autonomy and cooperation between unmanned machines will allow the military to reduce the amount of bandwidth it is using, which is becoming a growing problem. The machines will communicate among themselves without having to establish radio communication to human operators (Department of Defense 2007, 49).

> Lai. In theory, therefore, autonomy should enable more ethical and legal warfare. (Ministry of Defence, Development, Concepts, and Doctrine Centre 2011, 5-11)

For some, the development toward autonomy combines the best of human and machine expertise, allowing for more accurate and informed kill decisions. Figure 5-1 shows one depiction of these differing expertise from the Naval Surface Warfare Center. Third, machines will make more efficient decisions to kill. Autonomous systems allow for better synchronization and faster, more accurate communication across multiple platforms and machines. One military briefing slide, for example, compares the case for autonomy to the efficiency of automated ports and the moving and storage of shipping containers (Deptula 2009, 10).[107]

[107] Like many military PowerPoint slides, this one says a lot while seemingly saying very little. The comparison between the drone and the automated port is not clearly spelled out, but the efficiency of the port is emphasized. The slide points to an important relationship of capitalism to military technological development that would be an avenue for investigation, not only in terms of funding sources and profit-driven drone military contractors, but also in terms of the similar logics and ways of viewing and rendering objects in the world that underpin them.

Table 3. Comparison Between Man And Machine

HUMAN EXPERTISE	*MACHINE EXPERTISE*
The Good News:	*The Bad News:*
Creative	Uninspired
Adaptive	Needs to be Told
Sensory Experience	Symbolic Input
Broad Focus	Narrow Focus
Commonsense Knowledge	Technical Knowledge
The Bad News:	*The Good News:*
Perishable	Permanent
Difficult to Transfer	Easy to Transfer
Difficult to Document	Easy to Document
Unpredictable	Consistent
Expensive	Affordable

Fig. 5- 1 Comparison of Man and Machine (Canning 2005, 9)

Critiques of autonomous drone technology have tended to focus on the inability of machines to uphold the Laws of War. Noel Sharkey, a leader in voicing concerns over the proliferation of drone technology and the push to automation, who helped found the International Committee for Robot Arms Control (ICRAC), argues that using autonomous lethal drones would violate the principles of distinction and proportionality, which are key components of international humanitarian law (Sharkey 2011, 236). He argues that technology has not developed to the point (and he does not see this happening) that a robot can truly distinguish a civilian from a combatant, and that it is difficult to program requirements for "civilian-ness" into a computer (Sharkey 2011, 236-237). Others push this line of thinking further, arguing that, even with more advanced and accurate technology, it is categorically unethical for machines to decide to kill. As Peter Asaro writes, "The empirical question is whether a computer, machine, or

automated process could make each of these decisions of life and death and achieve some performance that is deemed acceptable. But the moral question is whether a computer, machine or automated process ought to make these decisions of life and death at all" (Asaro 2012, 699). For Asaro, just and ethical behavior cannot be automated; human judgment is a necessary and inherent component of the laws of war (Asaro 2012, 670). In this view, autonomous weapons produce a fundamental shift in the waging of war: "autonomous weapons systems represent a *qualitative* shift in military technology, precisely because they eliminate human judgment in the initiation of force. Therefore they threaten to undermine human rights in the absence of human judgment and review" (Asaro 2012, 693, emphasis added).

Yet these critiques of automation do not place the push toward autonomy within the much longer trajectory of incorporating machines in warfare that has roots in a particular modern technological and scientific rationality, as we have seen. Autonomous drones signal less a radically new relationship between humans and machines than an intensification of an already emergent tendency to overcome human error, not a qualitative, but a quantitative change. Viewed from the perspective of command and control, a central motivator for the incorporation of technology into war has been to act on increasing amounts of information. This desire for greater and better command and control finds its parallel in the pursuit of knowledge and mastery at the heart of modern science. Both projects – Western war and modern science – have formulated the human as split or double, as having earthly limitations to overcome on one hand and a transcendental rationality on the other. Lethal surveillance, therefore, not only demonstrates a climactic moment of command and control in its most direct (lethal)

sense, but also shows how automation and autonomous drones are a logical next step in this process. Seen in this light, automation does not present a novel challenge of non-human warfare, but reminds us of the very (Western) human project of mastery and domination that we see reflected in warfare today. Given the entrenchment of technological and scientific rationality in lethal surveillance, the question is raised of what resistance to this practice would look like. An effective critique must account for this longer modern goal of command and control, as I argue in the next chapter.

Chapter 6

Critiquing Drone Strikes: Technology, Art, and Lethal Surveillance

In the last chapter I looked to the historical development of the drone, and in particular the development of intelligence, reconnaissance, and surveillance (ISR) that traces alongside the drone's evolution, to show that understanding the contemporary drone as a technical object requires taking into account the modern technological and scientific rationalities embedded in it. I argued that the contemporary drone, and the trend toward autonomous drones, reflects less a shift to postmodern or "non-human" war than it reflects a climactic point of modern technological rationality and of a very modern scientific desire for global mastery and control. This chapter takes up this argument in the context of possible avenues of resistance and effective critique to lethal surveillance and contemporary drone wars.

The question of resistance to or critique of the contemporary use of drones has been taken up by academic scholarship largely under the themes of visibility and secrecy. Here I look at some examples of this scholarship in geography and critical security studies through the examination of a few projects that mobilize technology and artistic performance to question and challenge the use of drones. These projects include Josh Begley's metadata+ iPhone app, the #notabugsplat work, and James Bridle's Dronestegram and Drone Shadow installations. I show that the potential of linking art and technology needs to be understood beyond the goal of revealing or making visible the effects of drone strikes. As some of these projects show, art and technology have the

possibility for critique – not just revealing actions of the state but also for engaging and disrupting the systems of knowledge production that serve as their base. I explore this argument through the work of Heidegger and Benjamin in the second section of the chapter and conclude by reflecting on the challenges lethal surveillance poses for critique and resistance.

Making the Unseen Seen: Challenging the Drone Wars

There are a growing number of examples that lie at the intersection of art, technology, and political resistance one could draw on of projects that seek to challenge contemporary drone wars. Here I focus on several projects, which have gained quite a bit of international recognition. While there is significant variety in mediums, approaches, and goals, these projects generally utilize data and/or imagery as a way to reveal information or different perspectives.

Metadata+ is an iPhone app developed by Josh Begley that tracks and documents US drone strikes around the world.[108] The app displays information about these strikes in a real-time running list – in a format that mimics Apple's own text messages app. It also provides a map interface displaying the location of each strike so that users can toggle back and forth between the list and the map and sends alerts to the user when a new strike occurs (see figure 6-1). For Begley, the app seeks to push information about drone strikes to users within a familiar interface:

> For me, borrowing the visual vernacular of Apple's expertly built interface opens up the potential for a different kind of seeing. If the folks on the other side of our missiles are presented to us in the same places we see pictures of our loved ones

[108] See http://joshbegley.com.

(James Bridle's dronestagram) or communicate with our friends (@dronestream), might that nudge me to learn a little more about the contours of covert war? (Meyer 2014)

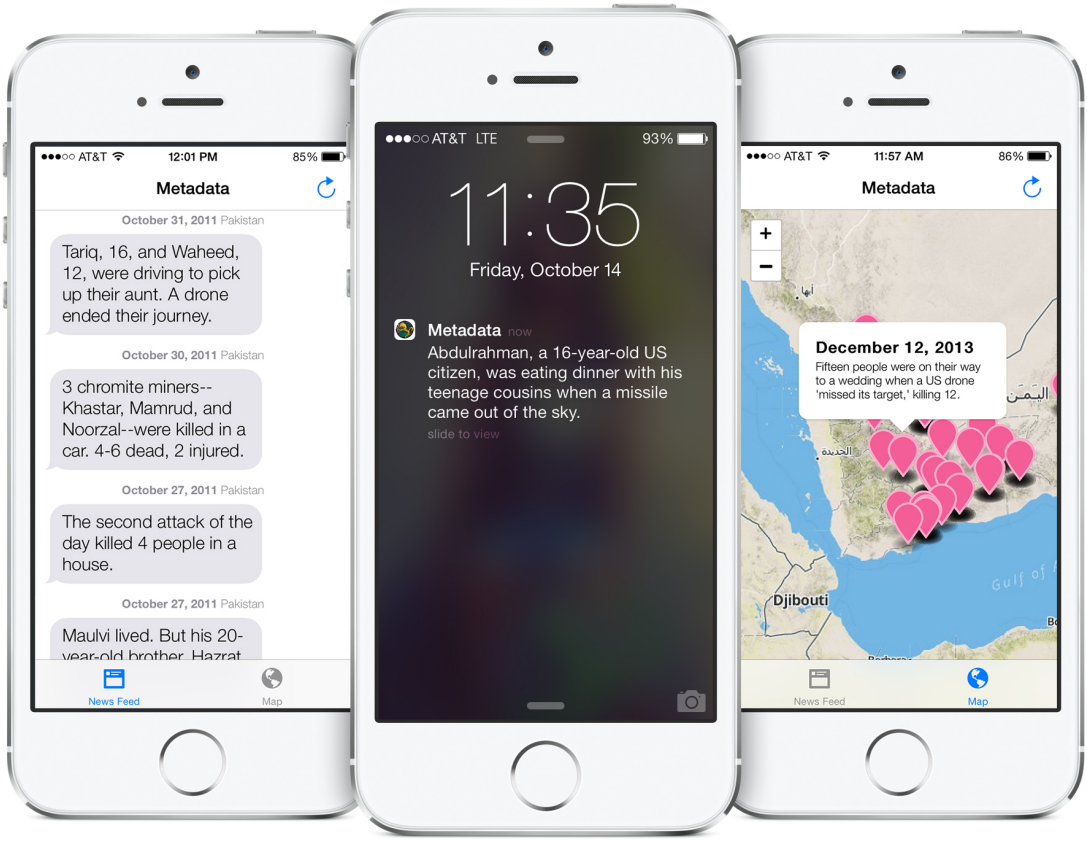

Fig. 6- 1 Metadata+ (from http://joshbegley.com)

The data for Begley's app comes from his "Dronestre.am" database,[109] which pulls from strike data collected by The Bureau of Investigative Journalism. The database currently catalogues 569 drone strikes and Begley provides public access to it for others to "build data visualizations about covert war." New additions to the database are tweeted out by the handle @dronestream, where Begley briefly describes each strike.

[109] See http://dronestre.am

These descriptions appear in the Metadata+ app. (A recent entry reads, "Four people were killed. 'The bodies inside the car were left charred.'")[110] For Begley, these descriptions are intended to try to connect users of the app to the strike. As he asks, "How do you represent information about people you'll never know—which is effectively metadata gleaned from English-language news reports—in a way that is intuitive and chewable but also unsettling?" (Meyer 2014). The map also plays a further important role in connecting users to the data, by making the strikes more visible and understandable to them: "I love my phone because it puts me at the center of the map. But I'm not the center of the map. I can't even pronounce the names of the places we're bombing. As much as I'm interested in apps that are ephemeral, I'm interested in apps that teach me something" (Meyer 2014).

Metadata+, released in early 2014, was originally conceived as an app called Drones+ and initially rejected by Apple from the App Store allegedly because its content was considered controversial and disturbing. After multiple tries, Begley redeveloped the app as Metadata+ and pitched it to Apple as a content-free app that would be populated by news sources related to national security issues. References to drones were removed. The original Drones+ cover image of a Predator firing a Hellfire missile was replaced by a National Reconnaissance Office satellite (NROL-39) patch that depicts a giant octopus engulfing the earth. While the text is not included on the image in the app, the original patch reads, "Nothing is beyond our reach " (Nuwer 2014).

Another project that has tried to make the locations and effects of drone strikes more visible is the #notabugsplat installation in Pakistan. Organized through an

[110] Entry from February 2, 2015. The strike took place in Yemen.

anonymous collaboration of artists and Reprieve-Foundation for Fundamental Rights, a non-profit human rights advocacy group based in Pakistan, #notabugspat installed a large photograph of a child in the middle of a field in Pakistan's Khyber Pukhtoonkhwa region (see figure 6-2).[111] According to the artists' description of the project, the image was meant to challenge the typical view of the drone, displaying an "innocent child victim's face" to the drone operator rather than an anonymous body moving across the screen. The project's website juxtaposes the child's image as seen from above with a screenshot of a view from a drone feed to make this point.

Fig. 6- 2 The #notabugsplat Installation (from http://notabugsplat.com)

With the installation, the artists seek to provide a new and more human perspective to the use of drones in Pakistan and to the "drone-eye view" from the sky.

[111] One of the artists is the anonymous French artist JR, who has installed large-format prints around the world relating to various social and political issues. See http://notabugsplat.com.

This change of perspective is a key aspect of the project. As Catherine Haley Epstein describes on her blog, "The work is not a call to change policies on drone strikes, or to be anti-American. It's simply a powerful gesture to share the perspective of those without a voice" (Epstein 2014). Making visual the victims of drone strikes, to the drone operators as well as Western audiences, the artists aim to produce empathy and make visible those who are on the other end of the strike and often remain invisible. As one of the collective members explained, "Although there is awareness for drone attacks, it's rarely humanized…This installation is our attempt at showing that" (Schonfeld 2014).

Similarly, James Bridle's Dronestagram project, started in 2012, seeks to use images in part to produce empathy and connection to drone strikes.[112] Using the popular Instagram app, Bridle posts Google-Earth satellite images of locations where drone strikes occur (see figure 6-3). Like Begley, through Instagram (and expanding since to Tumbler) Bridle uses an everyday communication app to raise awareness about the strikes. He writes, "…we have got better at immediacy and intimacy online: perhaps we can be better at empathy too" (Bridle 2012b). The focus of Dronestagram, unlike #notabugsplat, is on making the location more visible and real to viewers – people are notably absent from the filtered Google images. In this sense, Bridle's project recreates and reinforces the (pre-strike) drone-eye view but he envisions a positive aspect to this – bringing the images of the strike sites to the Western viewer:

> Yet at the same time we are attempting to build a 1-1 map of the world through satellite and surveillance technologies, that does allow us to see these landscapes, should we choose to go there. These technologies are not just for 'organising' information, they are also for revealing it, for telling us something new about the world around us, rendering it more clearly. (Bridle 2012b)

[112] See http://instagram.com/dronestagram.

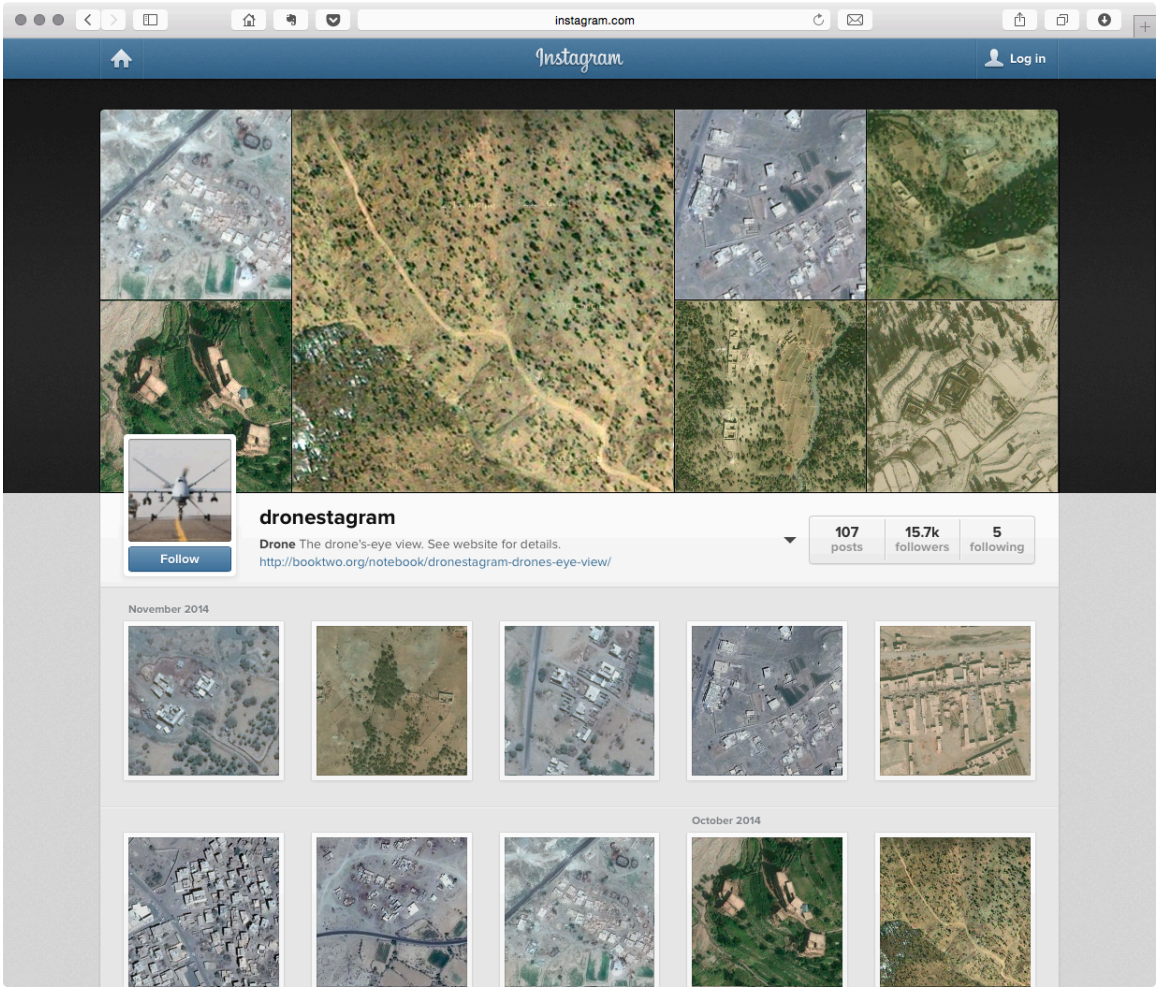

Fig. 6- 3 Screenshot of dronestagram (taken by author)

While Dronestagram mobilizes popular technology to transport people to the scene of drone strikes (via the drone's-eye view from above), another ongoing project by Bridle seeks to produce a more affective engagement with drones. Drone Shadow is a series of installations around the world where Bridle has drawn a to-scale white outline of a lethal drone on the ground, as if it were tracing the shadow cast from the drone in the

sky. Viewers get a sense both of the size of drones like the Predator, and the feeling of being "under" one. Bridle has done a series of these – one installation in June 2013 was part of an exhibit at the Corcoran Gallery in Washington, DC (see figure 6-4). The stark white outline filled the sidewalk in front of the building in downtown DC close to the White House. Other locations include Istanbul, London, and Brisbane.

Fig. 6- 4 June 2013 Drone Shadow Installation in Washington, DC (from http://shorttermmemoryloss.com/portfolio/project/drone-shadow-004/)

For Bridle, Drone Shadow makes visible an often-invisible aspect of the drone wars. Few people encounter the Predator in real life, and Drone Shadow tries to give this experience. Bridle is also concerned with the Predator as it is connected to a broader

network of technologies and information sources, however, and this might connect his two projects. As he writes:

> The drone also, for me, stands in part for the network itself: an invisible, inherently connected technology allowing sight and action at a distance…This is a result of the network's inherent illegibility, its tendency towards seamlessness and invisibility, from code to 'the cloud.' Those who cannot perceive the network cannot act effectively within it, and are powerless. The job, then, is to make such things visible. (Bridle 2012a)

The act of making visible is important for Bridle – it is not just the encounter with the white drone outline but the actual tracing of the outline that is important. For the release of the documentary *Dirty Wars*, Bridle created and distributed a "Drone Shadow Handbook" that provides instructions for creating your own to-scale outline. Bridle explains in the Introduction to the handbook that, "In order to understand the world around us, we sometimes need to draw it out. If you can't really describe the world around you, you can't fully act in it, and are made powerless. When you can describe it, you can debate and critique it. Drawing its shadow is just the first step."[113]

More examples could be used, but these projects provide a good overview of how drone strikes, and the security apparatus they are linked to, are challenged and critiqued through the intersection of art and technology. A central theme is the act of revealing, of making the unseen seen. Through the use of technology, these artists try to overcome the distancing effect of the drone, bringing viewers or users to the sites of drone strikes that otherwise might have remained out of their view. Part of the goal, especially for #notabugsplat, is to produce empathy in the viewer through the process of revealing. In addition to the victims and extent of drone strikes, they also try to make visible the

[113] See http://shorttermmemoryloss.com/portfolio/project/drone-shadow-handbook/.

broader war and security networks they are connected to. Derek Gregory (2014) uses the "sites of remote violence" depicted in Begley's app and Bridle's Dronestagram as a starting point in his article "Drone geographies" to begin uncovering the "multiple and compound geographies in which these [drone] operations are executed" (Gregory 2014, 7). For Gregory, the complex contours of the drone wars need to be brought into view. Tracing out some of these, he concludes with a call for increased visibility. With parallels to Bridle's concern with the network, Gregory writes, "This needs a wide-angle lens capable of capturing the geographies I have outlined here. Drones have undoubtedly made a difference to the conduct of later modern war…but their use cannot be severed from the matrix of military and paramilitary violence of which they are but a part. And it is that matrix that should be the primary target of critical analysis and political action" (Gregory 2014, 16).

Another theme running through these projects is the act of resistance or "speaking back" to power through art and technology. For the most part, these projects indicate that they reveal in order to question and debate. One way to understand this, as William Walters argues, is through the concept of parrhesia, which he develops from Foucault and sees as a kind of "fearless speech" directed at and against established institutions of power. Walters, concerned with developing a materialist approach to drone wars that sees drones and nonhuman objects more generally as sites or actors in political controversies, finds in the concept of parrhesia a way of taking into account not just the tangled networks and mechanisms of security but also modes of resistance to these structures. More specifically, parrhesia provides a way to conceptualize contentious politics, and for Walters this fills an important gap in critical security studies. Walters

uses the example Noor Behram, a journalist in Pakistan, who photographed sites of drone strikes in Waziristan. For Walters, the photographs are important for both revealing the sites of strikes (to Pakistani and Western audiences)[114] as well as for the risks involved to Behram in taking the pictures – either in pushback from local communities and/or government officials who object to him taking pictures, or potentially becoming a victim of a drone strike himself, given the area he is traveling in (Walters 2014a, 290-291). There are similar parallels here to the projects described above, however we could argue that the amount of risk varies greatly across them. Like these projects, the process of truth revealing is central to Walters examination. He writes, "I want to ask how one tells the truth about the covert war on terror, and what it costs to tell that truth. What role does the courageous activity and speech of particular individuals and not just organizations play in making this war more visible to a public?" (Walters 2014a, 288).[115]

While works like Bridle's and Begley's seek to make the unseen visible in ways that capture our attention and perhaps encourage us to act or think critically about drone wars, there is a sense that the idea of critique is not quite fleshed out in these projects, but also not in the academic literature on drones. These projects, among others, do a lot to make visible Western violence that remains tragically hidden. As I have argued, however, invisibility is only part of the problem. Further, a project like Dronestagram runs the risk of reinforcing the very structures of knowledge production that underpin the practice of lethal surveillance. The sites of drone strikes become visible to the viewer

[114] His photographs were exhibited in London as well as on a *Wired* blog post (Walters 2014a, 289).
[115] For more of an explanation of his materialist approach to conflict and public debate see Walters (2014b).

much like they do to the drone operator: at a distance, through a screen, and from above. The filters of Instagram further have the effect of rendering the sites as surreal and distant, unpopulated places. Likewise, while providing an invaluable account of drone strikes that is rarely heard, the emphasis on truth telling in Metadata+ and its format of meticulous data collection and empirical observation may bolster tropes of truth as a singular and objective value – to be found, uncovered, and utilized with eerie epistemological similarities to the "find, fix, finish" campaigns of the drone wars. In other words, it is not clear if Dronestagram and others are able to escape the larger structures of knowledge production and power that they seeks to question – and whether or not this is a problem. Can critique effectively act within a system of knowledge or does it require the production of fundamentally new knowledges?

Trevor Paglen (2013), also working at the intersection of art, security, and technology (and academia), echoes these questions as he reflects on encounters with a meticulous black satellite observer named Ted Molczan in an essay contribution to *From Above: War, Violence and Verticality*. Concerned that the observer's empirical methodology was rooted in a particular view of liberal democracy and modern scientific rationality, Paglen grapples with the question of truth and critique. It is worth quoting him at length, and we can see echoes of Descartes' questioning of truth and senses in the passage:

> I wanted to believe in Molczan's methods.
>
> I wanted to believe, because in a world of Abu Ghraibs, Guantanamo Bays, renditions, waterboardings, state secrets, wiretappings and black sites, it seemed as if the critical delinking of reflection and correspondence and the denigration of absolute space was no guarantee of a more equitable society. Wholeheartedly embracing contingency could also produce nightmares: a world in which torture

> was not torture, disappearance 'weren't happening', and the WikiLeaks cables were 'still classified' and therefore forbidden as evidence in an American court of law, even though they were out there for all to see. Not trusting one's own eyes can also have consequences: it can make it that much easier for authority to trump reason in dictating truth.
>
> Molczan made me want to believe that truth was not always supposed to be the woman Nietzsche famously (and misogynistically) denounced as a temptress and a tease. Molczan made me want to believe that truth might be like a point of light in the evening sky, the sun's reflection against something authorities say is not there. Singular. Visible to anyone who bothered looking through a telescope. Insisting on the verisimilitude of reflections could be a radical gesture. I wanted to believe, as Winston Smith wrote in his secret notebook, that freedom can mean insisting on two plus two making four.
>
> But perhaps I was being seduced. Perhaps I was, ironically, doing the thing that a classical faith in empiricism forbids above all else: allowing myself to see something because I wanted to see it. (Paglen 2013, 216-217)

In his conversations with Molczan, Paglen sees the utility, and perhaps necessity, in the satellite observer's detailed data collection. With so much of military and government activity deliberately hidden from public view, collecting one's own records and accounts may be the only way to uncover the extent of these activities and to be able to challenge authority. Yet, as Paglen's uneasiness at the end of the passage conveys, this project of resistance follows a similar empiricist logic of truth gathering that underpins many of the practices it is trying to critique.

The Question of Critique, Art, and Technology

There are a number of avenues we could follow in exploring the questions and tensions relating to truth telling, visibility, and critique or resistance in relation to drone strikes and contemporary security practices. Walters points to one with the concept of parrhesia, or we could turn to the growing literature on affect that engages in part with

technology and knowledge production. Drawing on the argument made in the prior chapter – that lethal surveillance reflects a longer modern scientific and technological rationality – I turn here instead to a concept of critique that emerges out of the writings of Walter Benjamin and Martin Heidegger. Heidegger and Benjamin point to the all-encompassing and subsuming nature of modern science and technological rationality and thus the difficulties of resisting it. Furthermore, both writers see an important role for art, enabling us to evaluate the potential effectiveness of the projects already examined, but also to think about new avenues for resisting lethal surveillance.

In "The Age of the World Picture," Heidegger lays out not only the broader need for critique but also its difficulty. In the essay, Heidegger's overarching question addresses modern science and the role that it has on our understanding of the world and the production of truth. He is writing during the period between World War I and World War II, by which time science has been increasingly incorporated into warfare triggering increased destruction and violence, notably with the technology of the airplane as one example of this. The development of weaponized drones like the Larynx and the Ram were part of this, as we have seen. At the same time, the university itself is beginning to change, with increased specialization within and between disciplines and greater institutionalism. Heidegger, seeing the encroachment of science into many areas of knowledge production, and its violent application in war, is concerned chiefly with leaving space open for critical thought and reflection.

In typical Heideggerean fashion, his investigation into the question of modern science unravels from an examination of modernity to questioning the essence of research and scientific method. Heidegger invokes the concept of the world picture as the

defining feature of modernity. The world picture is where everything is presented and known (or more generally we can say, is seen to exist) in a particular relation to humans. As Heidegger writes, "Where the world becomes picture, beings as a whole are set in place as that for which man is prepared…" (Heidegger 2002, 67). And later, "That the world becomes picture is one and the same process whereby, in the midst of beings, man becomes subject" (Heidegger 2002, 69). As Heidegger sees it, the totality of the world is increasingly being subsumed or experienced through a particular kind of knowledge production tied to modern science – one that involves a (violent) relationship of subject to object between humans and things (and often other humans). Humans, in other words, place themselves at the center – as the central subject of the world picture. In a moment in history that in some ways parallels our own, Heidegger is greatly concerned with the spread of the world as picture into all areas of life, pushing out other kinds of knowledge and creative questioning and reflection – what we can call critique. He does not devote a lot of space in the essay to what critique and creative questioning look like, but he reminds us that the importance of critique and reflection is "the courage to put up for question the truth of one's own presuppositions and the space of ones own goals" (Heidegger 2002, 57). In the case of the world as picture and modern science, this can mean interrogating the epistemological frameworks and assumptions of these practices. Important avenues for reflection can also come through poetry and art. For Heidegger, art as the potential to create other kinds of experience for us with the world – to encounter and relate to things and each other in ways that are not enframed by the dominant knowledge structures of modern science (Heidegger 1993, 339).

Benjamin connects the rationality of modern science to art in his 1939 essay, "The Work of Art in the Age of Its Technological Reproducibility." Benjamin, concerned both with art and politics, sees similar tendencies behind the technological and mass reproduction of art and the rise of fascism. Focusing here primarily on his critique of art, he claims that while art has always been reproducible, *technological reproducibility* is new. For Benjamin, through technological reproduction art loses its sense of "here and now," its unique existence, its authenticity and authority. Drawing on examples from film and photography, he argues that as art is increasingly commodified and mass produced, this produces generalized shifts in perception whereby people are increasingly disconnected and distracted from their lived realities. Through film especially, for Benjamin, the viewer's ability to critique and experience is mediated, edited, and channeled. These changes in people's experience and engagement with art furthermore reshape humanity as a whole, because of the new modes of perception it creates.

While writing at a different time in modern warfare compared to the present, Benjamin and Heidegger voice concerns over technology, science, and art that in many ways have only intensified since. On the one hand, art becomes an avenue through which to escape or to encounter modern science from the outside, or a tool though which the assumptions of modern science and technological rationality – their epistemological foundations – can be played with, perverted, and exposed. On the other, the intensifying links between art and technology – a digitization that goes well beyond what Benjamin could have imagined – raise important questions about the ability of art to effectively critique (if that is its role). In projects like Dronestagram and Metadata+, the relationship between art and technology is especially important to explore in relation to war and

violence, as they can be dangerously productive of one another. In the process of revealing information about drone strikes, these projects run the risk at the very least of reinforcing the epistemological framework that supports the global drone wars. While this might seem like a minor issue (especially given the limited visibility strikes receive in Western media), it forecloses on other kinds of knowledges and experiences that might be produced to resist or question the practice of lethal surveillance.

Benjamin recognized this danger in his argument of about the technological reproduction of art. Its logical and destructive end was the subsumption of art into the project of fascism. As he concludes his essay:

> Fiat ars—pereat mundus' [Let art flourish—and the world pass away] says fascism expecting from war, as Marinetti admits, the artistic gratification of a sense perception altered by technology. This is evidently the consummation of *l'art pour l'art*. Humankind, which once, in Homer, was an object of contemplation for the Olympian gods, has now become one for itself. Its self-alienation has reached the point where it can experience its own annihilation as a supreme aesthetic pleasure. *Such is the aestheticizing of politics, as practiced by fascism. Communism replies by politicizing art*. (Benjamin 2003, 270)

The call to politicize art, resounding somewhat with Heidegger's call for creating space for critical reflection, is worth returning to today, in the context of drone wars and lethal surveillance, to begin to articulate what critique and resistance might now look like. Critical engagement must interrogate modern scientific modes of knowledge production and the persistent perspectives of technological rationality that make lethal surveillance possible, as well as produce new knowledges about this practice.

We can find examples of this in the Drone Shadow installations. Bridle is attempting to engage other affective responses to drones outside the dominant visual and technological narratives. His outlines produce new experiences with the drone for

Western audiences as they encounter them. Similarly, while still operating within the view from above, the #notabugsplat image also pushes the "drone-eye view" to its limits. By enlarging a young girl's face across the landscape, it shows not only what a drone does not see, despite its advanced technology and claims to clear vision, but also the absurdity and impossibility of the drone's claim to total vision.

Finally, we might also find an example in *Grounded*, a recent play by George Brant. The one-woman play follows a female fighter pilot who becomes pregnant and is forced to transfer to a unit flying drones in Nevada.[116] There she lives with her partner and child, commuting to the air base daily. The play's narrative explores her frustration at having to work at a desk, the increasing difficulty she has in separating her work from her home life, the stress of her job, and her reactions to what she sees on the screen in front of her as she pilots the drone. While focused primarily on the perspective of the drone pilot, the play seeks to disrupt and challenge many common assumptions about drone warfare (and the military more generally), revealing the complex and often-contradictory dynamics that shape it. It does this by creating a growing sense of unease between the audience and the actor, as the pilot experiences and explores a range of responses to the act of killing. She is both proud and haunted by the drone strikes she conducts, becoming both a sympathetic and a repulsive figure for the audience throughout her narrative. The staging of the play adds to this unease. The set is largely bare, intentionally abstract with dim lighting, making it difficult for the audience to gain a sense of clarity about what it is seeing. It also has the effect of making the actor the sole

[116] There have been a number of productions of this play nationally. I saw a November 2014 production in Minneapolis by Frank Theatre at The Playwright's Center featuring Shá Cage.

focus of the stage, reminding the audience of the role of the human in contemporary drone wars.

What is especially powerful about the play and makes it a potential starting point for thinking of effective avenues of critique is that it leaves the audience unsettled – it produces more questions about drone strikes and contemporary war than it answers, opening up a space for reflection and debate about the ethics of strikes as well as one's own affective and emotional responses. In other words, it does not aim to produce one or "the" truth about war, but to weave together multiple realities and experiences, many of which are contradictory. Critique and resistance to drone strikes must create new knowledges and attempt to disrupt and push back against the dominant frameworks and ways of seeing that shape both lethal surveillance and how we often encounter it. A small step toward this, which this dissertation has sought to do, is to understand these underpinning rationalities and practices, and just how entrenched they are not only in contemporary warfare, but Western governance and ways of living more generally.

Chapter 7

Conclusion

In setting out to research the history of drone technology, this dissertation has demonstrated the importance of the broader (contemporary and historical) practices that that the drone is embedded in to understanding today's expanding and evolving drone wars. Taking these practices into account reframes the questions we ask of warfare today, and how we may see it changing in the future. As Chapter Two argues, this frame should be centered on the practice of *lethal surveillance*. Throughout the history of the drone – and we could extend this investigation to other technologies and techniques of war—we see two broad developments. The first is the growing importance of information gathering and processing to war. ISR becomes increasingly incorporated, through real-time data processing and the push to automated decision-making, into an ever-more dynamic targeting process, which is the second major development. Viewing contemporary drone strikes as a practice of lethal surveillance thus shows how these two aspects of war have become increasingly intertwined with each other.

Through examining the practice of lethal surveillance, this dissertation has also shown that the contemporary proliferation of drone strikes signals more than a changing mode or practice of warfare. Lethal surveillance reflects developments that lie at the heart of Western governance and ways of knowing. Chapter Three looked at the longer history of Western violence that parallels the history of the drone, arguing that not only does this history of violence show that the drone strike is not an anomaly to liberal

governance, but because of how biopolitical techniques are deployed in contemporary drones war, a study of the drone can also be a study of how liberalism operates now. Chapter Four unpacked the violence of the drone strike further, focusing on the decision and justification of taking life. Because an element of sovereign power is an important aspect of the drone strike, I showed how a concept of ephemeral sovereignty can help us to understand the spatiality of global drone strikes and changing meanings of territory and sovereignty. This violence of the drone strike finds an epistemological partner in the technological and scientific rationality that shapes the trend toward ISR. Many critical engagements with drone technology have emphasized the modern scientific ways of seeing the world through the drone, but they do not, as I argue in Chapter Five, go far enough to interrogate the structures of power and violence that shapes these ways of seeing. Doing this, I identified a push to "command and control" that forms the basis of modern scientific practice and rematerializes in the action of the drone strike. Seeing these aspects of violence, governance, and science together in the practice of lethal surveillance helps us to better understand how central drone strikes are to the contemporary moment, as well as the challenges presented in formulating a resistance to them, as I discussed in Chapter Six.

The dissertation as a whole has made two major moves. The first is to identify the emergence of lethal surveillance within the history of drone technology itself. As we saw in Chapter Two, the development of the drone reflects two major trends in Western warfare: the growing importance of information and surveillance to war and increasingly dynamic targeting processes. These two trends have merged today in the action of the drone strike (see figure 7-1). Being attentive to these histories can help us see what is

missed if we view the drone as a radically new technology. Furthermore, it shows that what *is* distinctive about the contemporary era is that practices of producing knowledge and practices of control have collapsed into a single mechanism.

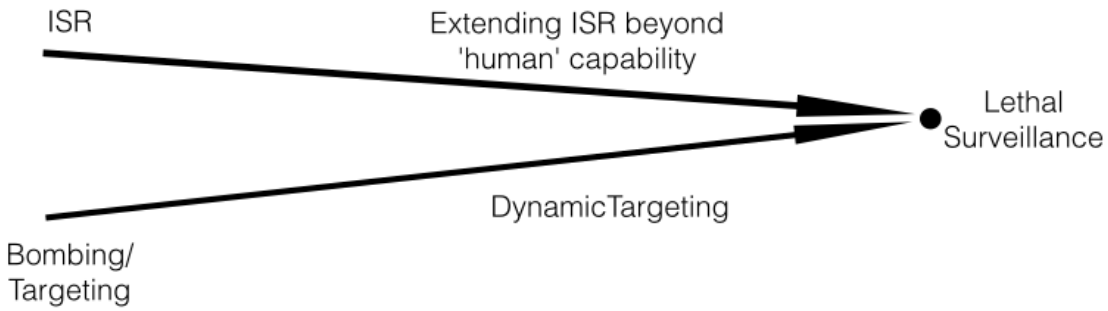

Fig. 7- 1 The Emergence of Lethal Surveillance

The second move made in the dissertation is to situate lethal surveillance within longer modern histories of modern scientific development, Western warfare, and liberal governance. I argue that the collapsing of knowledge production and killing and control that we see in the practice of lethal surveillance reflects a similar intersection and interconnectedness between war, liberalism, and modern science (see figure 7-2). Chapters Three, Four, and Five are thus devoted to tracing out these aspects of lethal surveillance. A common thread that runs through these chapters is that there is a foundational violence at the heart of these practices and that these practices have similar ways of seeing and transforming the world. The drone strike makes visible the violence that connects and shapes these practices of modernity. With the move toward lethal

surveillance in figure 7-1, we can imagine a parallel closing in of the triangle in figure 7-2.

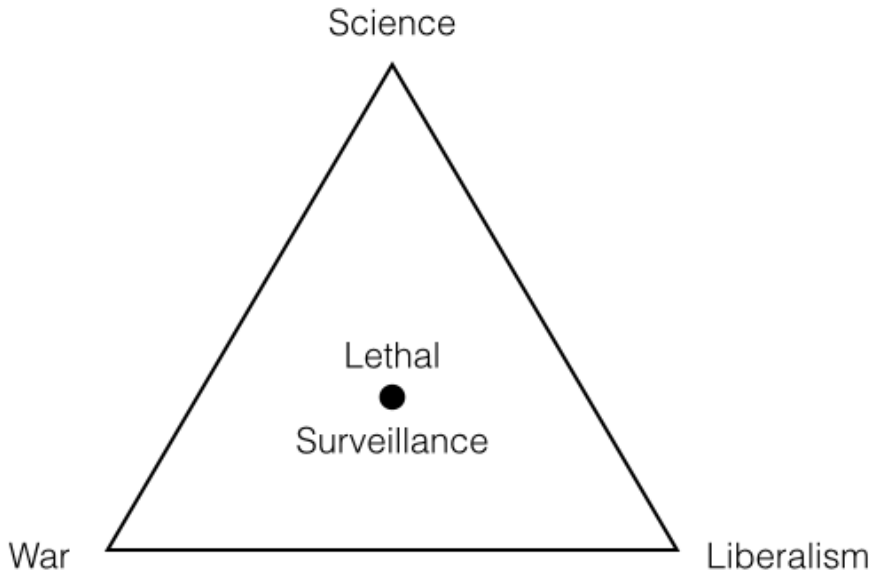

Fig. 7- 2 Lethal Surveillance at the Intersection of War, Liberalism, Science

Looking forward, there are a number of areas of further research that emerge out of this dissertation. Given the interest of this project in trying to understand the longer histories that shape the contemporary drone wars, I have traced these out here with broad strokes. What has been gained by identifying significant intersections between science, war, and liberalism, and continuities across the history of drone development, also signals the sacrifice of finer details and more concrete examinations of how these intersections work and change across the twentieth century. To that end, in my next project, I plan to focus in more detail on the early years case study. In particular, I will investigate the live

ammunition drone tests of the Larynx in Iraq at the end of the 1920s. Detailing this drone program and experiment will be another avenue through which to understand the relationship between Western colonial violence and scientific practice that shapes lethal surveillance.

A second line of research that will follow from this thesis pursues the argument that viewing the drone through the lens of lethal surveillance allows us to see connections between drone wars and other practices of security and governance. Lethal surveillance is not a practice limited to the drone, and more work needs to be done to identify the connections between the drone and other state practices. For example, there are clear resonances between the military's "death by metadata" targeting procedures and the NSA's global surveillance apparatus, especially around the challenges of gathering and acting on 'big data.' Furthermore, we see renewed debates today within the United States centered on the right to kill and police violence. How might we understand connections between the long-standing and violent structure of racial disparity in the United States with the history of violence that underpins lethal surveillance? This is especially relevant as police departments look to arm their growing drone fleets. Finally, the figure that haunts this thesis, always just off the page, is capitalism. Given the importance of the emergence of capitalism to the early histories of liberalism and modern science as well as the role that capital plays in shaping contemporary practices of war and security (whether through private contractors, interdependent global economies, etc), the role of capitalism in the emergence of lethal surveillance needs to be investigated. Command and control forms the basis not only of warmaking and Western scientific practice, but also of the global capitalist economy. Turning a lens to the intersection of capitalism and lethal

surveillance will not only help widen our view of contemporary drone wars, but may also help us to formulate better avenues of resistance to them.

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